

SHEET TITLE

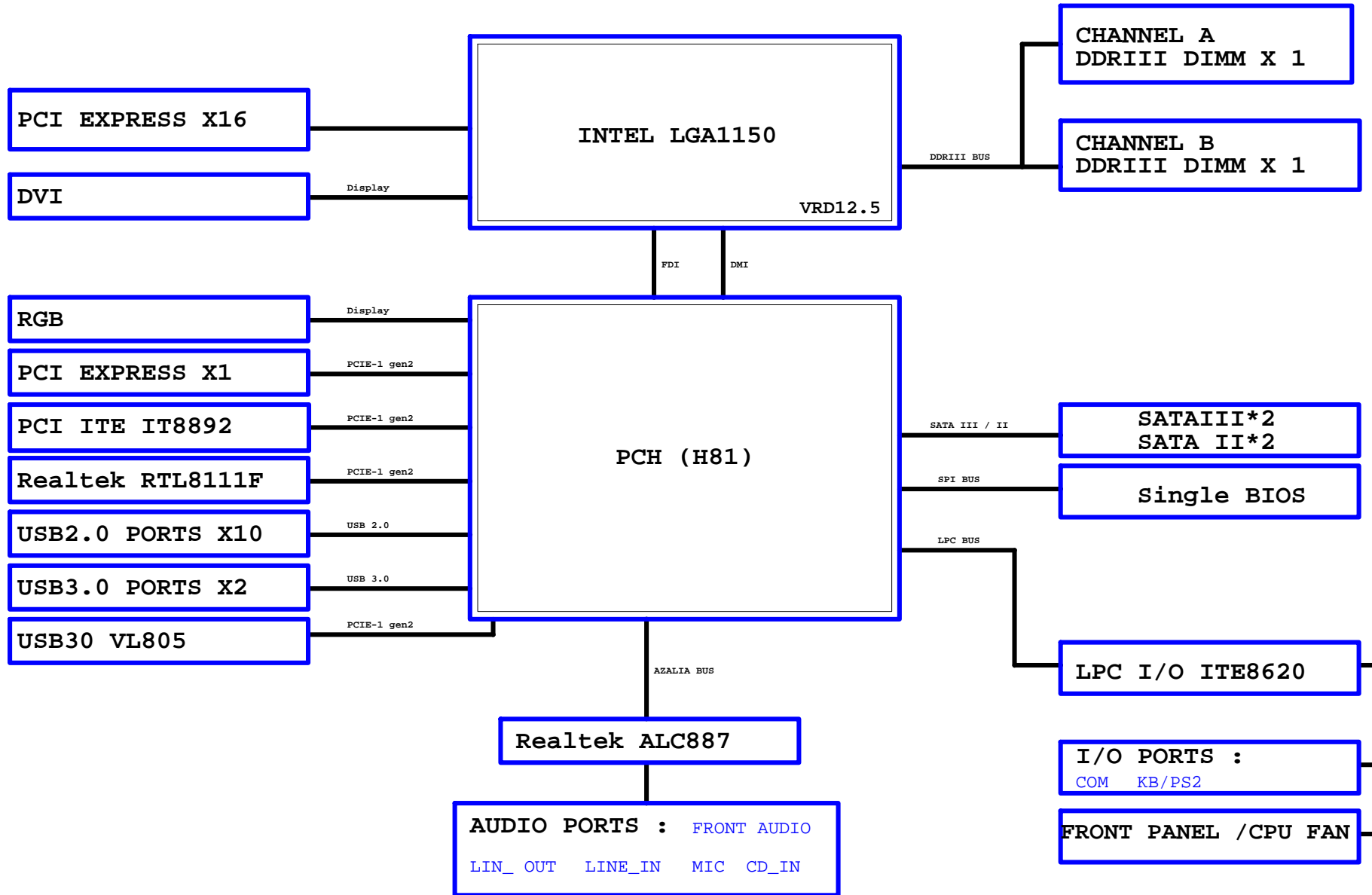
01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE,NVRAM
10	PCH_DP,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCI EXPRESS X1 SLOT
16	PCI SLOT
17	ITE 8620 LPC IO
18	COM,LPT,KB_MS_USB
19	HWM,FAN CTRL,OV,-PROCHOT
20	Single BIOS
21	F_USB30,FP,FUSB,SPK,SATALED
22	Realtek ALC887-VD2
23	REAR AUDIO JACK
24	REALTEK RTL8111F
25	DISCRETE POWER
26	ATX
27	VCORE ISL95812_1

SHEET TITLE

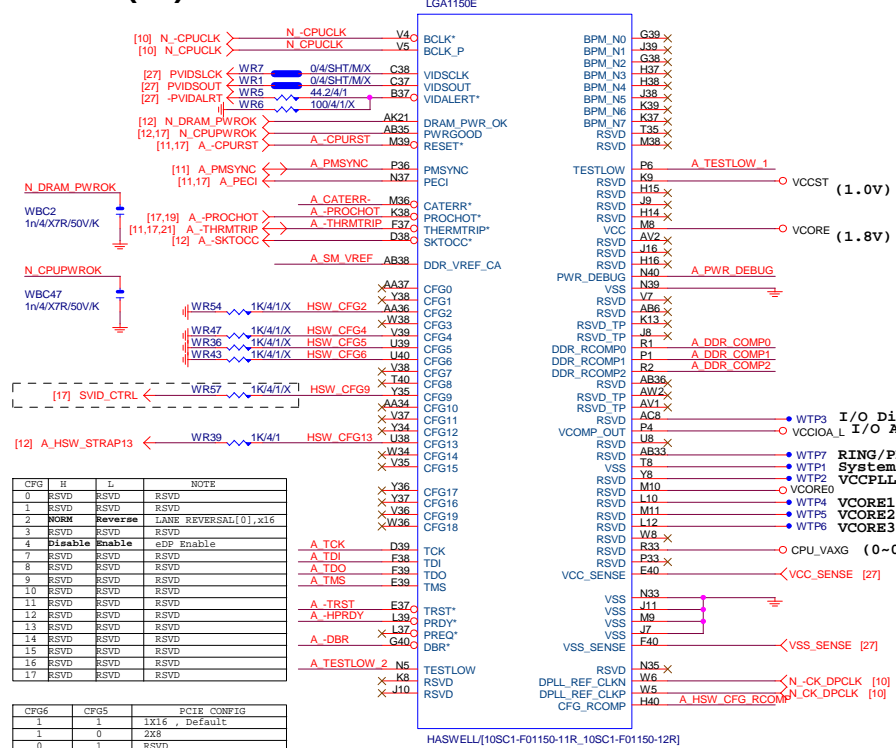
28	VCORE ISL95812_2
29	RT8120_DDR POWER
30	DVI, R_USB30
31	IT8892E
32	USB3 VL805

Gigabyte Confidential
Do not Copy

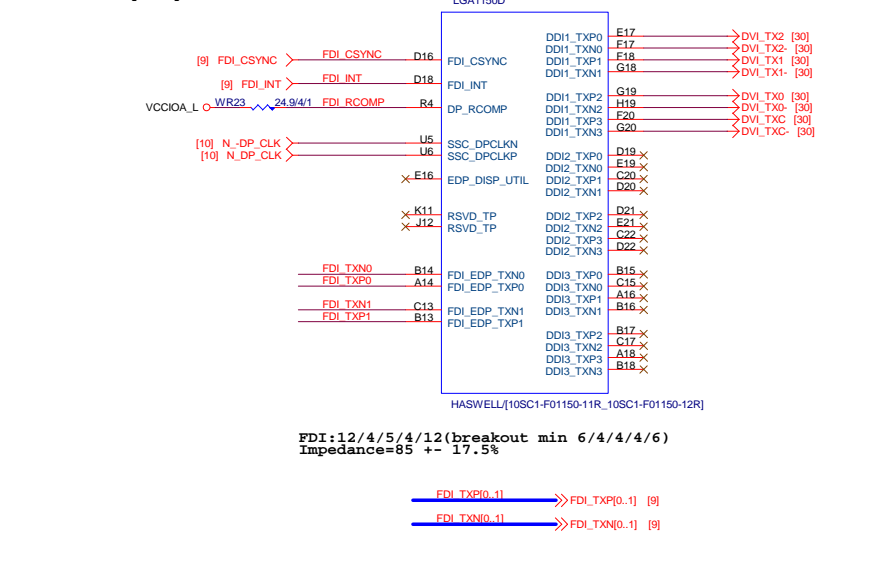
BLOCK DIAGRAM



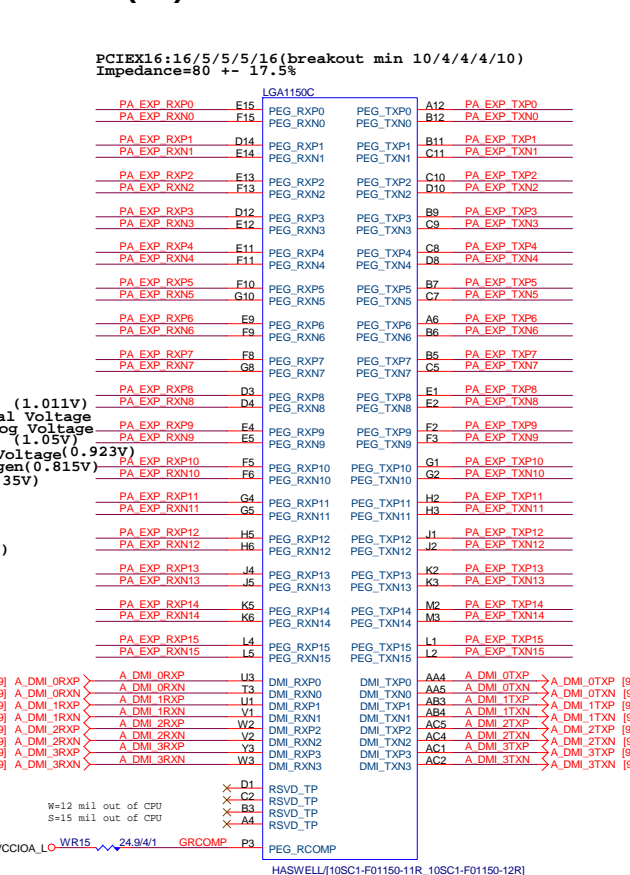
LGA1150 (E)



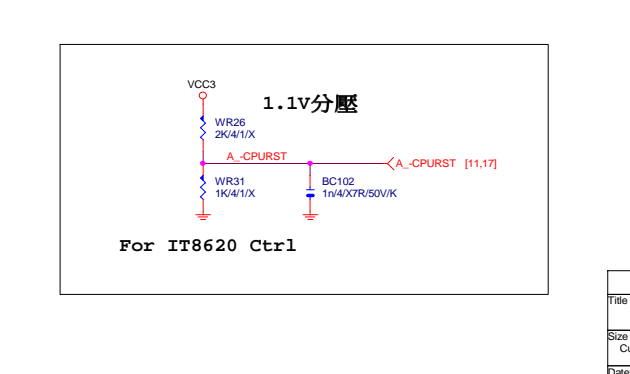
LGA1150 (D)



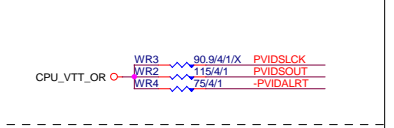
LGA1155 (C)



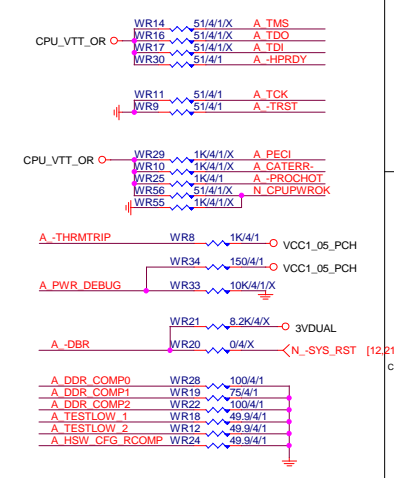
-CPURST



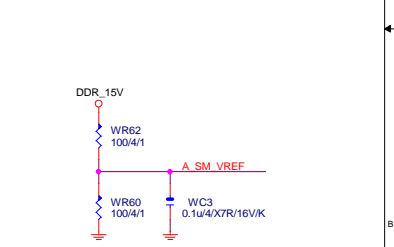
CPU SVID



CPU PU/PD



SM REF



LGA1150 (A)

LGA1150 (B)

LGA1150 (CR)

LGA1150A

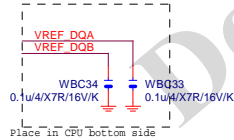
MAAA0	AU13	DDR0_MA0	DDR0_D00	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_D01	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_D02	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_D03	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_D04	AD37	MDA4
MAAA5	AW18	DDR0_MA5	DDR0_D05	AD40	MDA5
MAAA6	AV17	DDR0_MA6	DDR0_D06	AE37	MDA6
MAAA7	AT18	DDR0_MA7	DDR0_D07	AF40	MDA7
MAAA8	AU18	DDR0_MA8	DDR0_D08	AH40	MDA9
MAAA9	AT19	DDR0_MA9	DDR0_D09	AH39	MDA10
MAAA10	AW11	DDR0_MA10	DDR0_D10	AK38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_D11	AK39	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_D12	AH37	MDA12
MAAA13	AT20	DDR0_MA13	DDR0_D13	AH38	MDA13
MAAA14	AW20	DDR0_MA14	DDR0_D14	AK37	MDA14
MAAA15	AU21	DDR0_MA15	DDR0_D15	AK40	MDA15
			DDR0_D16	AM40	MDA17
MODT_A0	AW10	DDR0_ODT0	DDR0_D17	AM39	MDA21
MODT_A1	AV8	DDR0_ODT1	DDR0_D18	AP39	MDA19
	AW9	DDR0_ODT2	DDR0_D19	AM37	MDA20
	AU8	DDR0_ODT3	DDR0_D21	AM38	MDA16
			DDR0_D22	AP37	MDA22
			DDR0_D22	AP40	MDA23
AW33		DDR0_ECC0	DDR0_D23	AV37	MDA25
AW33		DDR0_ECC1	DDR0_D24	AW37	MDA29
AU31		DDR0_ECC2	DDR0_D26	AU35	MDA26
AW31		DDR0_ECC3	DDR0_D27	AV35	MDA27
AT33		DDR0_ECC4	DDR0_D28	AT37	MDA28
AU33		DDR0_ECC5	DDR0_D28	AU37	MDA24
AT31		DDR0_ECC6	DDR0_D29	AT35	MDA30
AW31		DDR0_ECC7	DDR0_D30	AW35	MDA31
			DDR0_D31	AV6	MDA33
[7] SBAA0	SBA0	DDR0_BA0	DDR0_D32	AU6	MDA37
[7] SBA1	SBA1	DDR0_BA1	DDR0_D33	AV4	MDA34
[7] SBA2	SBA2	DDR0_BA2	DDR0_D34	AU4	MDA35
			DDR0_D35	AV6	MDA32
[7] CKEA0	CKE0	DDR0_CKE0	DDR0_D37	AW4	MDA38
[7] CKEA1	CKE1	DDR0_CKE1	DDR0_D39	AR4	MDA39
			DDR0_D40	AR4	MDA45
[7] -CSA0	-CSA0	DDR0_CS_N0	DDR0_D41	AN3	MDA42
[7] -CSA1	-CSA1	DDR0_CS_N1	DDR0_D42	AN4	MDA43
			DDR0_D43	AR2	MDA44
			DDR0_D44	AR3	MDA40
			DDR0_D45	AN2	MDA46
[7] DCLKA0	DCLKA0	DDR0_CLK_P0	DDR0_D46	AN1	MDA47
[7] -DCLKA0	-DCLKA0	DDR0_CLK_N0	DDR0_D47	AL1	MDA49
[7] DCLKA1	DCLKA1	DDR0_CLK_P1	DDR0_D48	AL4	MDA53
[7] -DCLKA1	-DCLKA1	DDR0_CLK_N1	DDR0_D49	AL3	MDA50
			DDR0_D50	AJ4	MDA51
			DDR0_CLK_P2	AL2	MDA52
			DDR0_CLK_N2	AL3	MDA48
			DDR0_CLK_P3	AJ2	MDA54
			DDR0_CLK_N3	AJ1	MDA55
			DDR0_D55	AG1	MDA57
			DDR0_D57	AG4	MDA61
			DDR0_D58	AE3	MDA58
			DDR0_D59	E4	MDA59
			DDR0_D60	AG2	MDA60
			DDR0_D61	AG3	MDA56
[7] -SRASA	-SRASA	DDR0_RAS*	DDR0_D62	AE2	MDA63
[7] -SWEA	-SWEA	DDR0_WE*	DDR0_D63	AE1	MDA62
			DDR0_DOS_P0	AE39	DOSA0
			DDR0_DOS_P1	AJ39	DOSA1
			DDR0_DOS_P2	AN39	DOSA2
			DDR0_DOS_P3	AV36	DOSA3
			DDR0_DOS_P4	AV5	DOSA4
			DDR0_DOS_P5	AP3	DOSA5
[7] -SCASA	-SCASA	DDR0_CAS*	DDR0_DOS_P6	AK3	DOSA6
			DDR0_DOS_P7	AF3	DOSA7
			DDR0_DOS_P8	AV32	DOSA7
			DDR0_DOS_N0	AE38	-DOSA0
			DDR0_DOS_N1	AJ38	-DOSA1
			DDR0_DOS_N2	AN38	-DOSA2
			DDR0_DOS_N3	AJ36	-DOSA3
			DDR0_DOS_N4	AW5	-DOSA4
			DDR0_DOS_N5	AP2	-DOSA5
			DDR0_DOS_N6	AK2	-DOSA6
			DDR0_DOS_N7	AF2	-DOSA7
			DDR0_DOS_N8	AU32	-DOSA7

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

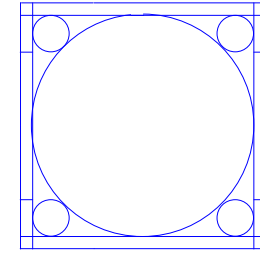
LGA1150B

MAAB0	AL19	DDR1_MA0	DDR1_D00	AE34	MDB0
MAAB1	AK23	DDR1_MA1	DDR1_D01	AE35	MDB1
MAAB2	AM23	DDR1_MA2	DDR1_D02	AE35	MDB2
MAAB3	AM23	DDR1_MA3	DDR1_D03	AH35	MDB3
MAAB4	AP23	DDR1_MA4	DDR1_D04	AQ34	MDB4
MAAB5	AL23	DDR1_MA5	DDR1_D05	AQ35	MDB5
MAAB6	AY24	DDR1_MA6	DDR1_D06	AH34	MDB7
MAAB7	AV25	DDR1_MA7	DDR1_D07	AH34	MDB8
MAAB8	AU26	DDR1_MA8	DDR1_D08	AL34	MDB8
MAAB9	AW25	DDR1_MA9	DDR1_D09	AL35	MDB9
MAAB10	AE18	DDR1_MA10	DDR1_D10	AK31	MDB10
MAAB11	AY28	DDR1_MA11	DDR1_D11	AL31	MDB11
MAAB12	AV28	DDR1_MA12	DDR1_D12	AK34	MDB12
MAAB13	AR15	DDR1_MA13	DDR1_D13	AK35	MDB13
MAAB14	AV27	DDR1_MA14	DDR1_D14	AK32	MDB14
MAAB15	AY28	DDR1_MA15	DDR1_D15	AL32	MDB15
			DDR1_D16	AP34	MDB17
MODT_B0	AM17	DDR1_ODT0	DDR1_D17	AP34	MDB21
MODT_B1	AL16	DDR1_ODT1	DDR1_D18	AK31	MDB19
	AM16	DDR1_ODT2	DDR1_D19	AK35	MDB20
	AK15	DDR1_ODT3	DDR1_D20	AP35	MDB16
			DDR1_D22	AN32	MDB18
	AM26	DDR1_ECC0	DDR1_D22	AP32	MDB22
	AM25	DDR1_ECC1	DDR1_D24	AM28	MDB28
	AP25	DDR1_ECC2	DDR1_D24	AR29	MDB27
	AP26	DDR1_ECC3	DDR1_D26	AR28	MDB30
	AL26	DDR1_ECC4	DDR1_D27	AL23	MDB34
	AL25	DDR1_ECC5	DDR1_D27	AL28	MDB29
	AR26	DDR1_ECC6	DDR1_D28	AP29	MDB26
	AR25	DDR1_ECC7	DDR1_D29	AP28	MDB31
[8] SBAB0	SBAB0	DDR1_BA0	DDR1_D31	AR12	MDB32
[8] SBAB1	SBAB1	DDR1_BA1	DDR1_D32	AL12	MDB33
[8] SBAB2	SBAB2	DDR1_BA2	DDR1_D33	AL13	MDB34
			DDR1_D34	AL12	MDB35
[8] CKEB0	CKEB0	DDR1_CKE0	DDR1_D36	AR13	MDB36
[8] CKEB1	CKEB1	DDR1_CKE1	DDR1_D37	AM13	MDB38
			DDR1_D38	AM12	MDB39
			DDR1_D40	AR9	MDB45
[8] -CSB0	-CSB0	DDR1_CS_N0	DDR1_D41	AP9	MDB41
[8] -CSB1	-CSB1	DDR1_CS_N1	DDR1_D42	AR6	MDB47
			DDR1_D43	AP6	MDB43
			DDR1_D44	AR10	MDB44
			DDR1_D45	AP10	MDB40
			DDR1_D46	AR7	MDB42
			DDR1_D47	AP7	MDB42
			DDR1_D48	AM9	MDB52
[8] DCLKB0	DCLKB0	DDR1_CLK_P0	DDR1_D49	AL9	MDB53
[8] -DCLKB0	-DCLKB0	DDR1_CLK_N0	DDR1_D49	AL6	MDB50
[8] DCLKB1	DCLKB1	DDR1_CLK_P1	DDR1_D50	AL7	MDB55
[8] -DCLKB1	-DCLKB1	DDR1_CLK_N1	DDR1_D51	AM10	MDB48
			DDR1_D52	AL10	MDB49
	AN20	DDR1_CLK_P2	DDR1_D53	AM6	MDB54
	AN21	DDR1_CLK_N2	DDR1_D54	AM2	MDB51
	AP19	DDR1_CLK_P3	DDR1_D55	AH6	MDB61
	AP20	DDR1_CLK_N3	DDR1_D56	AH7	MDB60
[8] -SCASB	-SCASB	DDR1_CAS*	DDR1_D58	AE6	MDB59
		RSVD	DDR1_D59	AE7	MDB63
[8] -SRASB	-SRASB	DDR1_RAS*	DDR1_D60	AJ6	MDB56
[8] -SWEB	-SWEB	DDR1_WE*	DDR1_D61	AF7	MDB57
			DDR1_D62	AJ7	MDB58
[7] VREF_DOA	VREF DOA	DDR_VREF_DQ0	DDR1_D63	AE7	MDB62
[8] VREF_DOB	VREF DOB	DDR_VREF_DQ1	DDR1_D63	AE7	MDB62
			DDR1_DOS_P0	AL33	DOSB1
			DDR1_DOS_P1	AP33	DOSB2
			DDR1_DOS_P2	AN28	DOSB3
			DDR1_DOS_P3	AN12	DOSB4
			DDR1_DOS_P4	AP8	DOSB5
			DDR1_DOS_P5	AL8	DOSB6
			DDR1_DOS_P6	AG7	DOSB7
			DDR1_DOS_P7	AG7	DOSB7
			DDR1_DOS_P8	AN25	-DOSB0
			DDR1_DOS_N0	AK33	-DOSB1
			DDR1_DOS_N1	AN33	-DOSB2
			DDR1_DOS_N2	AN29	-DOSB3
			DDR1_DOS_N3	AM13	-DOSB4
			DDR1_DOS_N4	AR8	-DOSB5
			DDR1_DOS_N5	AM8	-DOSB6
			DDR1_DOS_N6	AG6	-DOSB7
			DDR1_DOS_N7	AN26	-DOSB7
			DDR1_DOS_N8	AN26	-DOSB7

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



CR CPU RETENTIONX



LGA1150_P



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

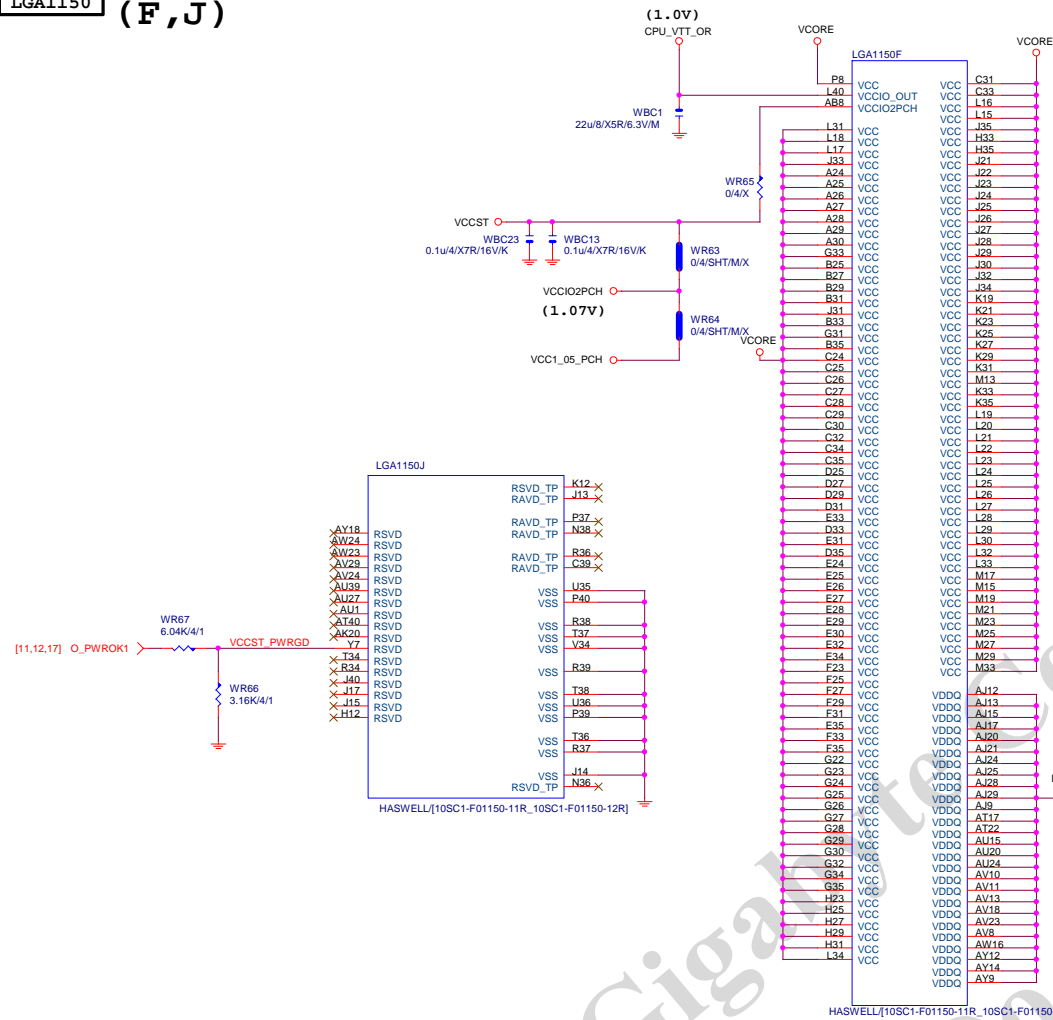
DDR BUS

- [7] MODT_A[0..1] ↔ MODT_A0..1
- [8] MODT_B[0..1] ↔ MODT_B0..1
- [7] MDA[0..63] ↔ MDA0..63
- [8] MDB[0..63] ↔ MDB0..63
- [7] DQSA[0..7] ↔ DQSA0..7
- [7] -DQSA[0..7] ↔ -DQSA0..7
- [7] MAA[0..15] ↔ MAA0..15
- [8] MAB[0..15] ↔ MAB0..15
- [8] DQSB[0..7] ↔ DQSB0..7
- [8] -DQSB[0..7] ↔ -DQSB0..7

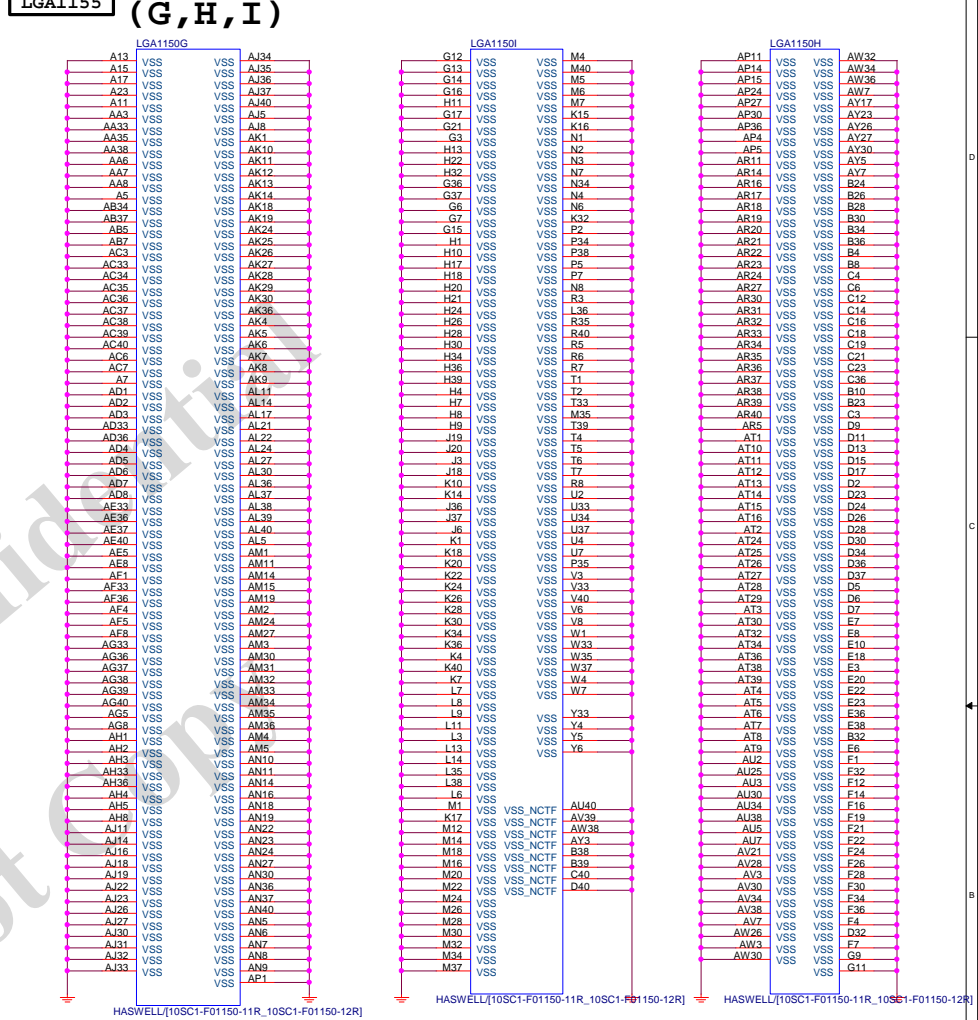
Gigabyte Technology

Title			
CPU LGA1150-B			
Size	Document Number	Rev	
Custom	GA-H81M-S2VP	1.0	
Date:	Thursday, December 19, 2013	Sheet	5 of 32

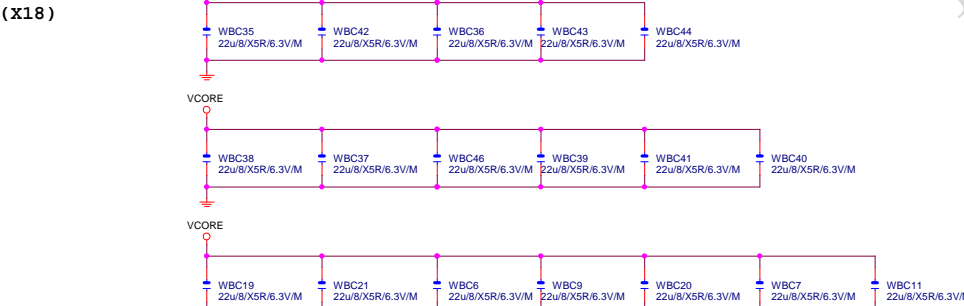
LGA1150 (F, J)



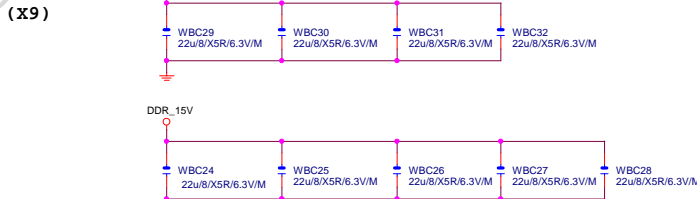
LGA1155 (G, H, I)

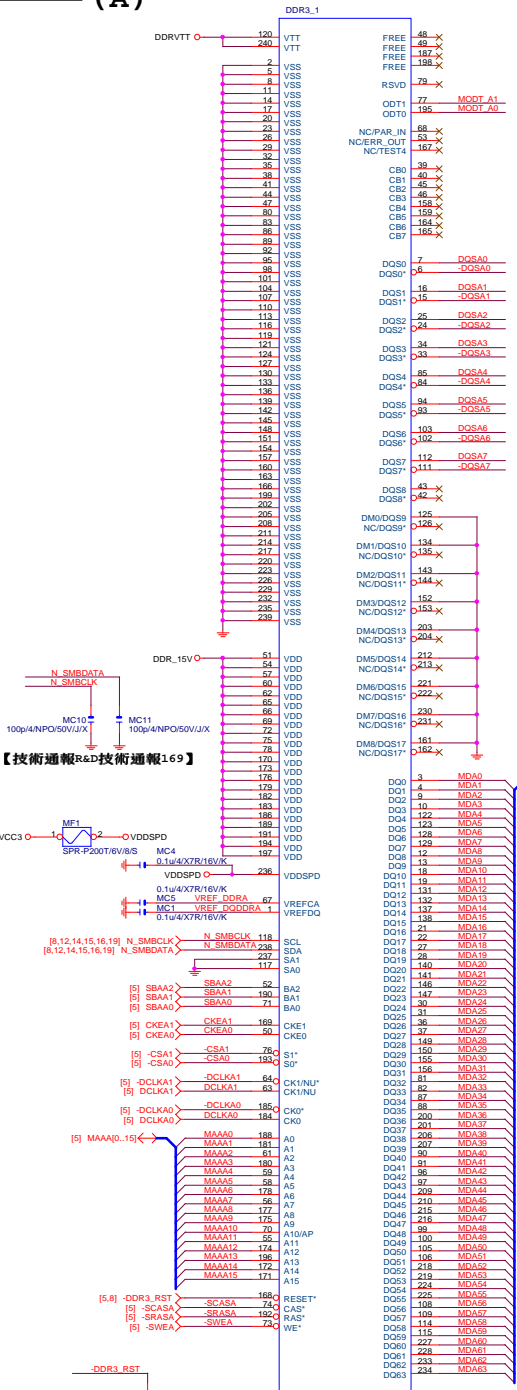


VCore CAP



DDR CAP





【技術通報R&D技術通報169】

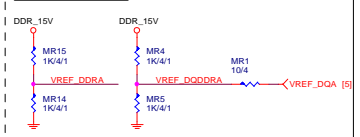
VCC3

DDR3_RST

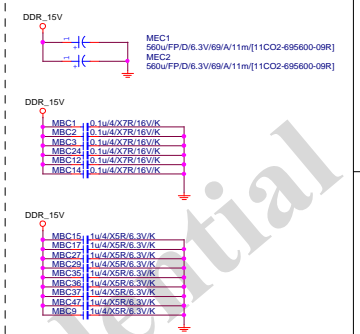
BLANK CONNECTOR



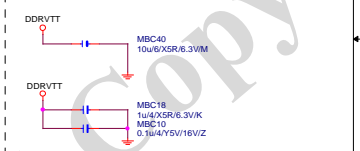
DDR3 VREF



DDR15V Decouple

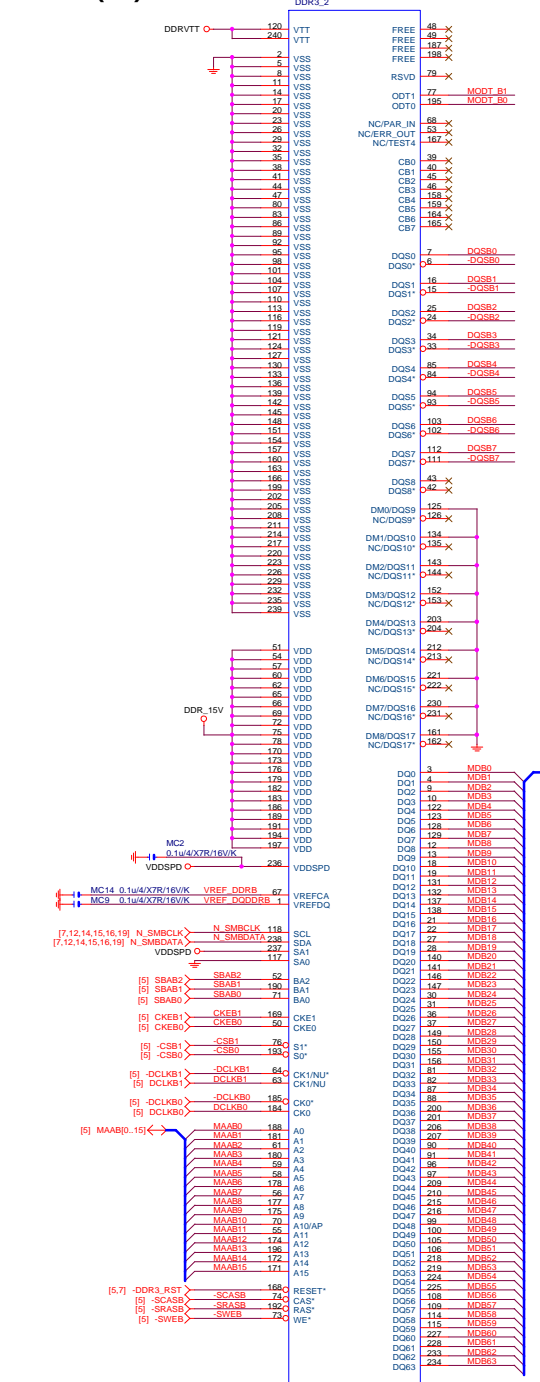


DDRVRT Decouple

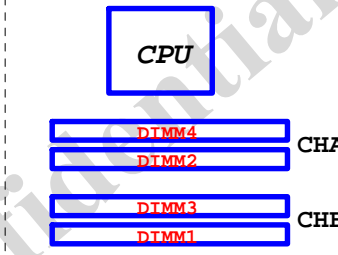
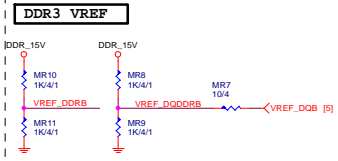
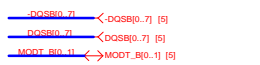


Gigabyte Confidential Do not Copy

(B)



DDR3240/BK/VA/D
BLACK CONNECTOR

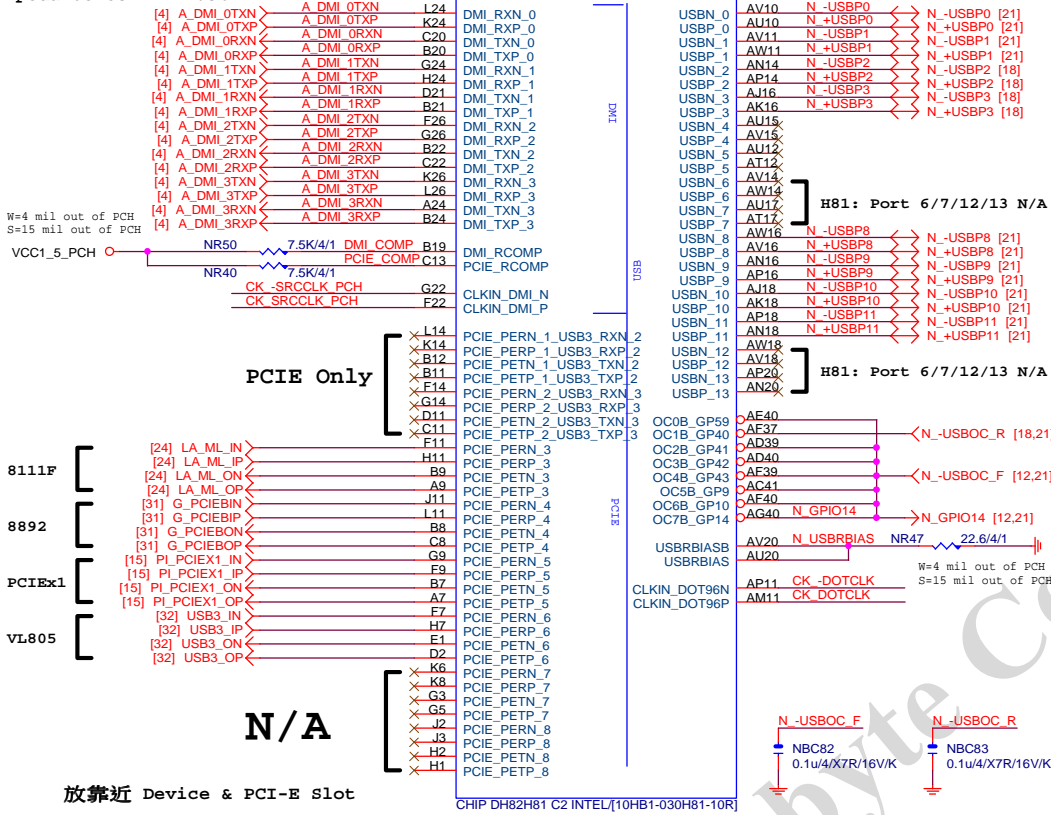


Gigabyte Confidential
Do not Copy

PCH (B)

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

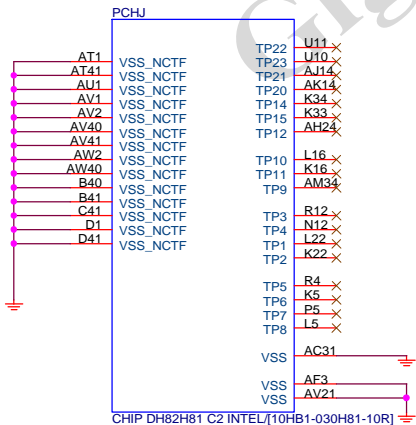
USB2.0 : 12/4.5/7.5/4.5/12 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



放靠近 Device & PCI-E Slot
Impedance=80 +- 17.5%

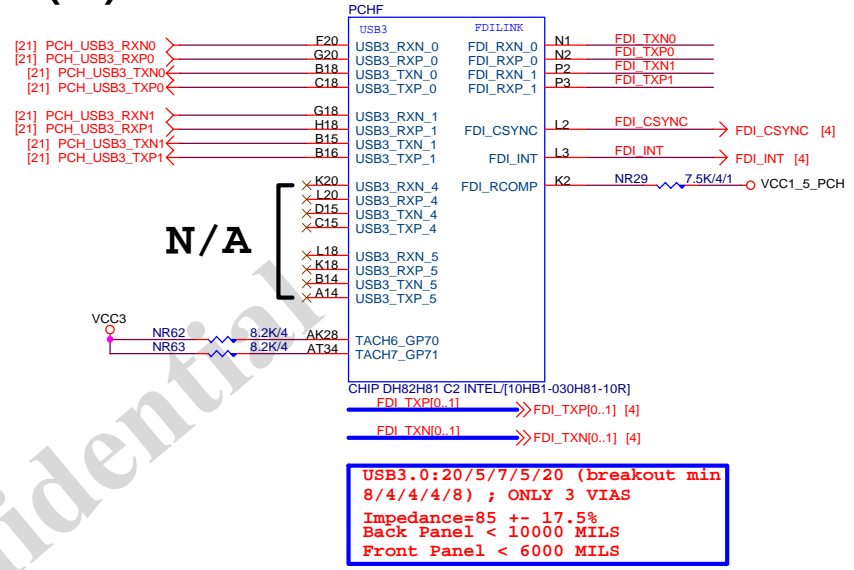
PCIE1:16/5/5/5/16 (breakout min 8/4/4/4/8)

PCH (J)

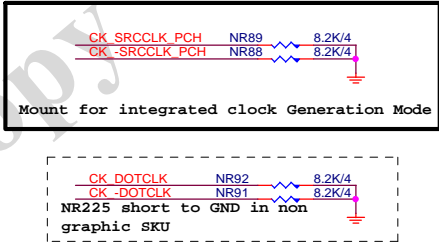


CHIP DH82H81 C2 INTEL[10HB1-030H81-10R]

PCH (F)

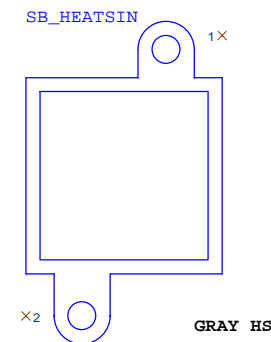


PCH CLK PD



PCH H/S

LOW COST ICH7 HEATSINK



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

USB TABLE

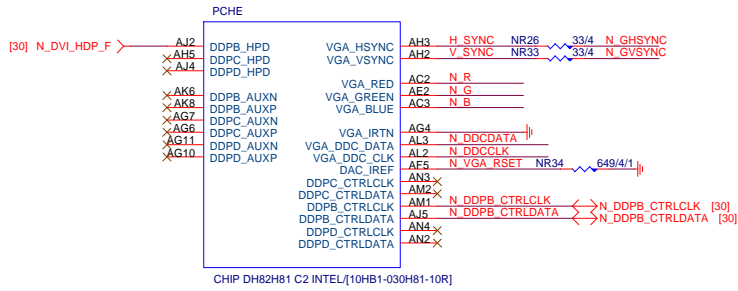
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)

USB OC#	Configure
OC0#	F_USB30
OC1#	KB_MS_USB
OC2#	Not Use
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	N/A
OC7#	Not Use

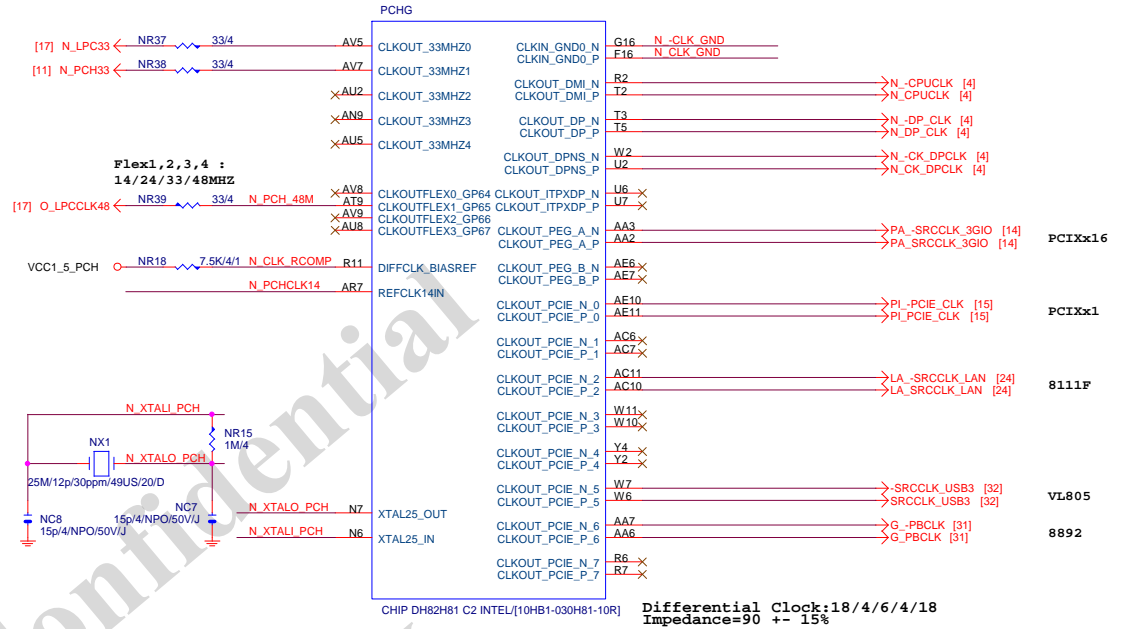
Gigabyte Technology

Title		PCH FDI,DMI,USB ,PCIE,NVRAM	
Size	Document Number	GA-H81M-S2VP	
Custom			Rev 1.0
Date:	Thursday, December 19, 2013	Sheet	9 of 32

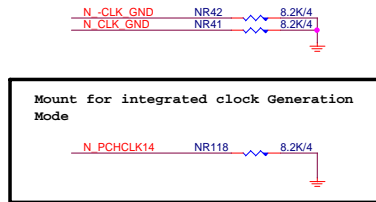
PCH (E)



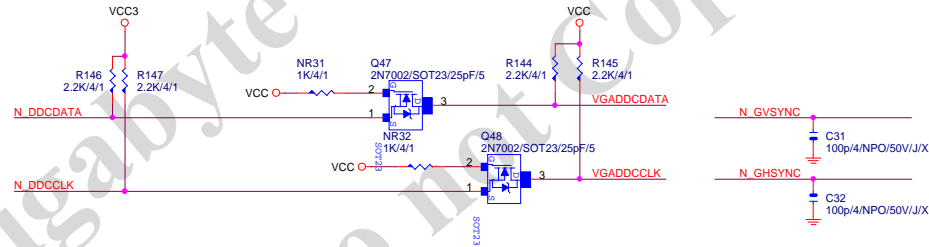
PCH (G)



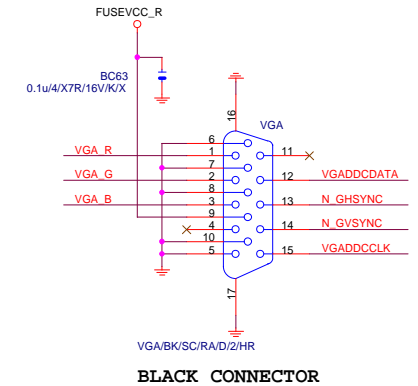
PCH CLK PD



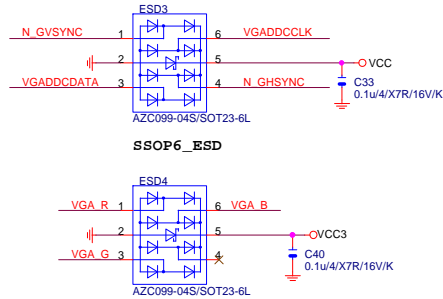
VGA DDC



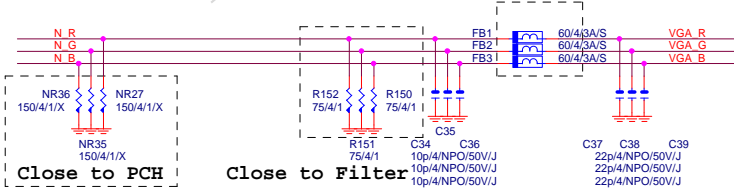
VGA CONNECTOR



VGA ESD

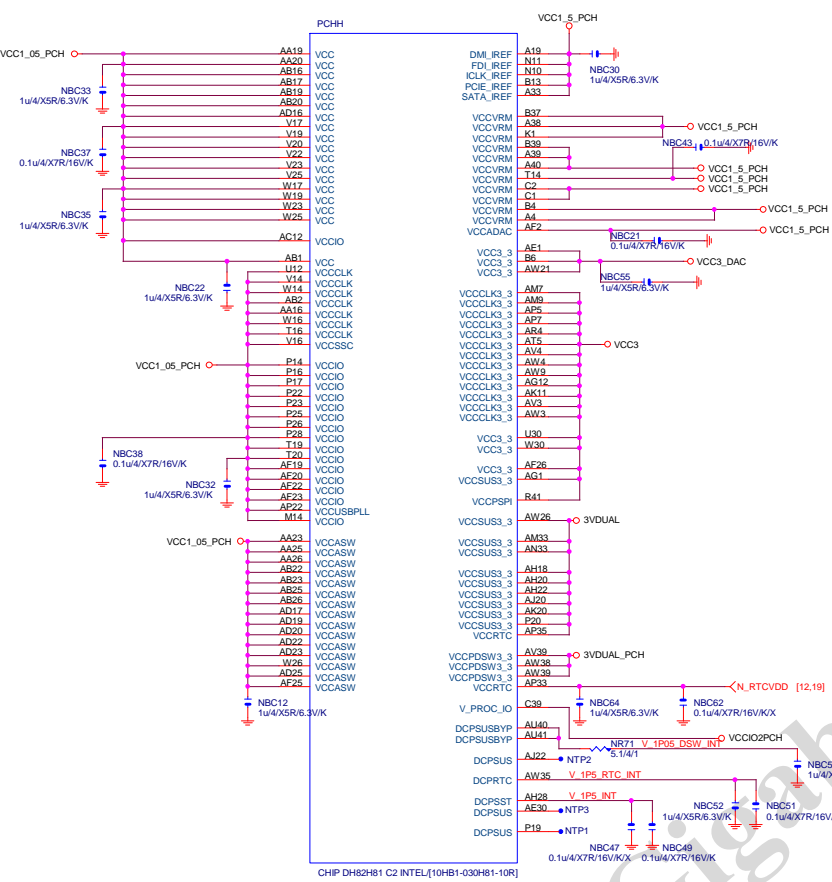


VGA DDC



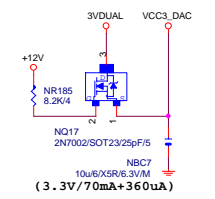
Gigabyte Technology		
Title PCH DISPLAY ,CLK BUFFER		
Size Custm	Document Number GA-H81M-S2VP	Rev 1.0
Date:	Thursday, December 19, 2013	Sheet 10 of 32

PCH (H)

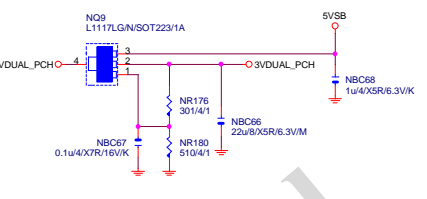


VCC3_DAC

CLOSE北橋(注意震盪水波紋)



3VDUAL_PCH

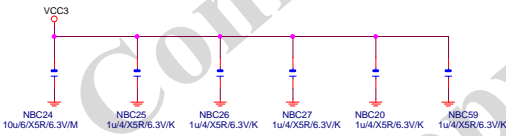


SHT_PWR

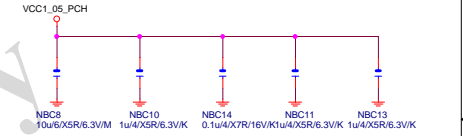


CAP

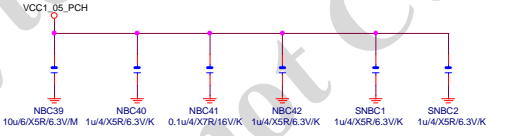
(3.3V) (X6)



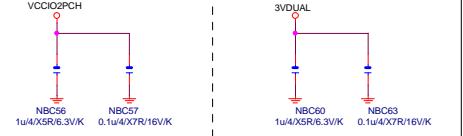
(1.05V) (X5)



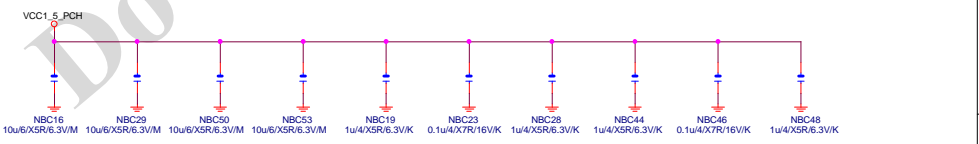
(1.05V) (X6)



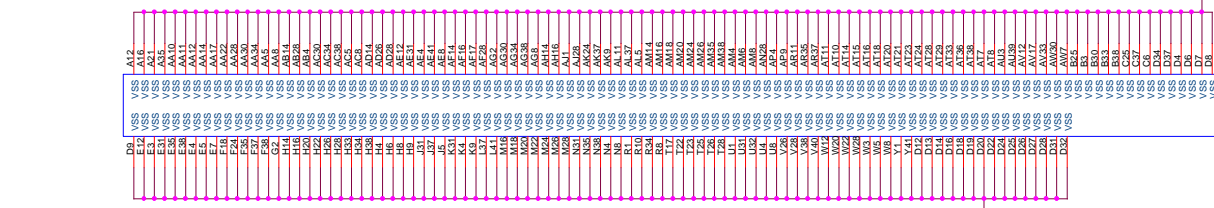
(1.05V)(X2) (3.3V) (X2)



(1.05V) (X10)

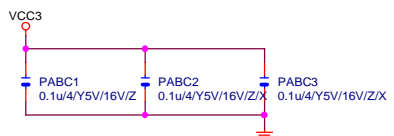


PCH (I)

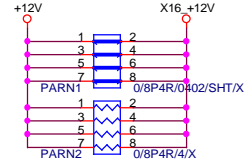


PCH1 CHIP DH82H81 C2 INTEL(10HB1-030H81-10R)

PCIEX16 CAP



PCIEX16 PROTECT SHT

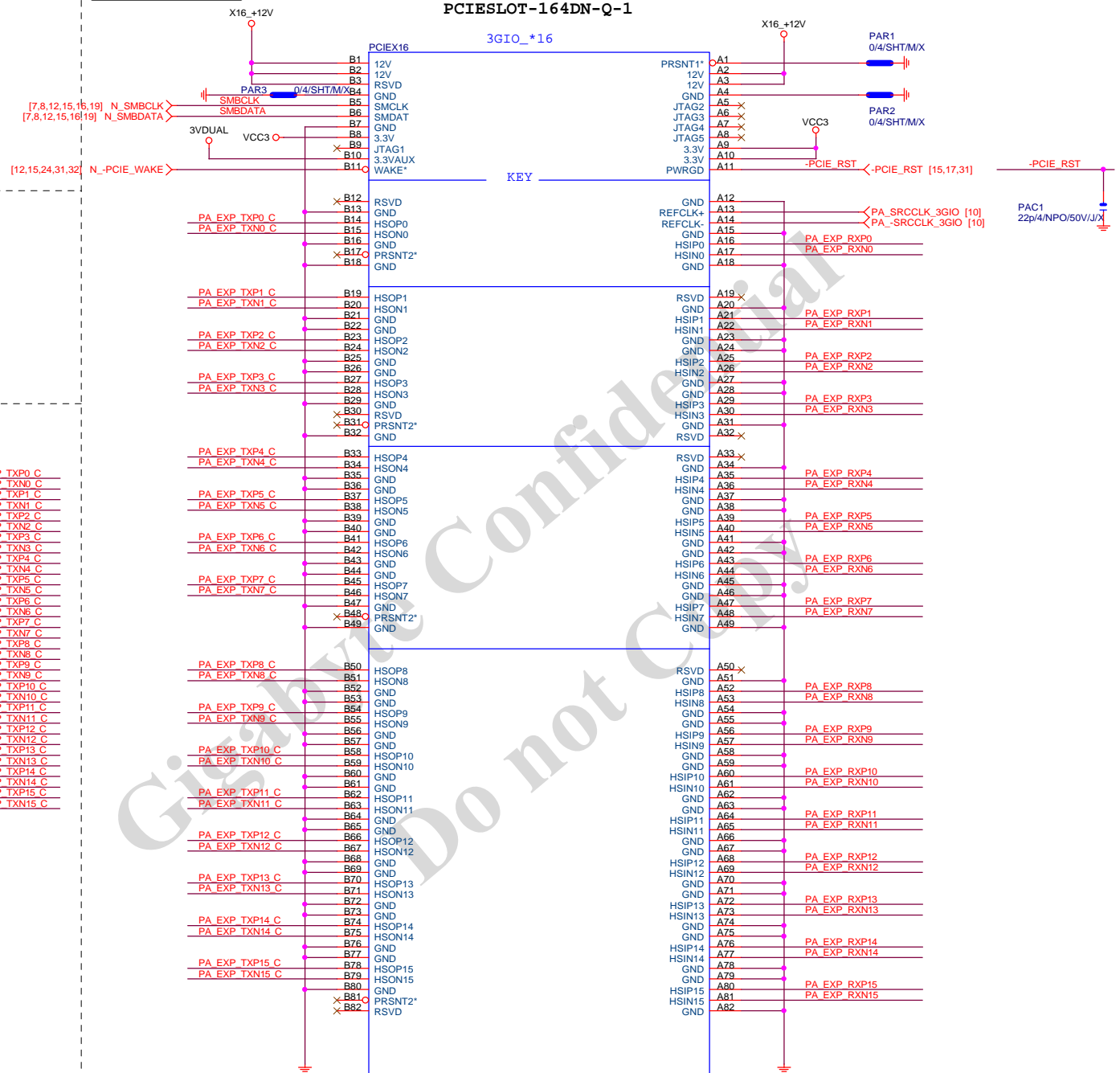


PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC19	0.22u4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R/6.3V/K	PA EXP TXN15 C

- PA EXP RXP0.15] >>> PA_EXP_RXP[0.15] [4]
- PA EXP RXN0.15] >>> PA_EXP_RXN[0.15] [4]
- PA EXP TXP0.15] >>> PA_EXP_TXP[0.15] [4]
- PA EXP TXN0.15] >>> PA_EXP_TXN[0.15] [4]

PCIEX16 SLOT



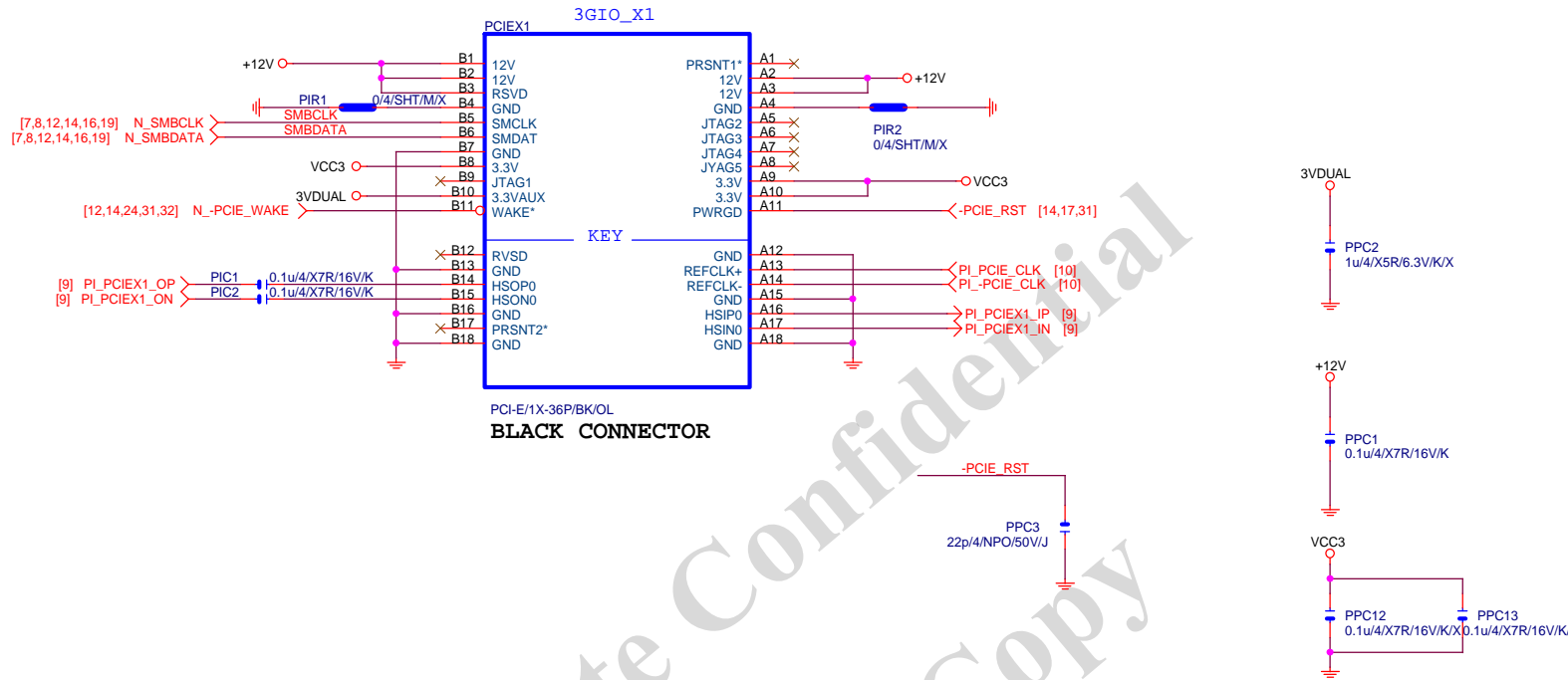
PCI-E16X-164P/BK/LONG DOUBLE
BLACK CONNECTOR

Gigabyte Technology

PCI EXPRESS * 16

Title		Rev	
PCI EXPRESS * 16		1.0	
Size	Document Number	Rev	
Custom	GA-H81M-S2VP		
Date:	Thursday, December 19, 2013	Sheet	14 of 32

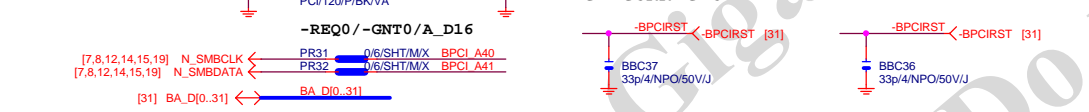
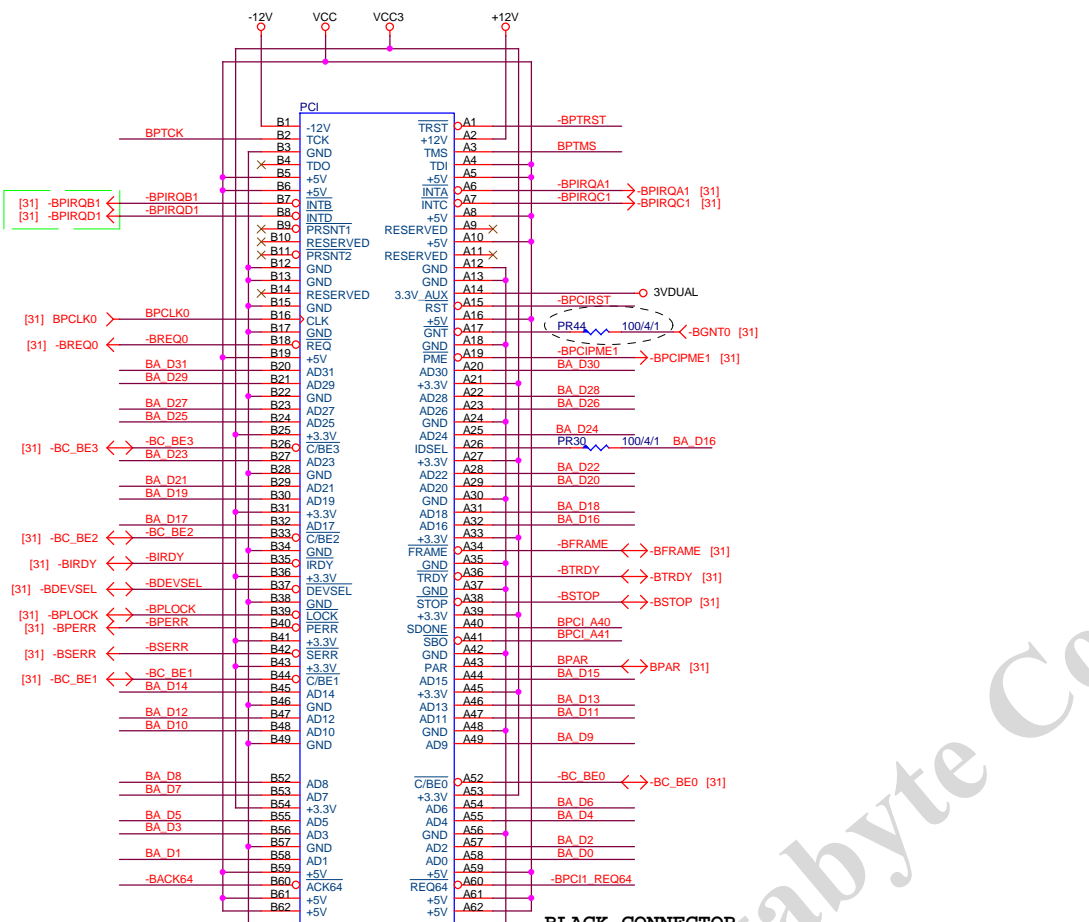
PCIEX1 SLOT



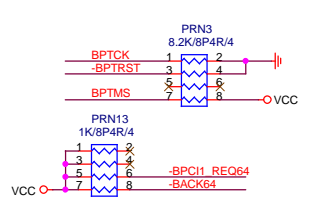
Gigabyte Confidential
Do not Copy

Gigabyte Technology			
PCI EXPRESS X 1 PORT			
Title			
Size	Document Number	Rev	
Custom	GA-H81M-S2VP	1.0	
Date:	Thursday, December 19, 2013	Sheet	15 of 32

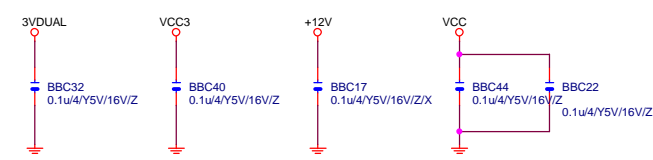
PCI SLOT 1



PCI PU

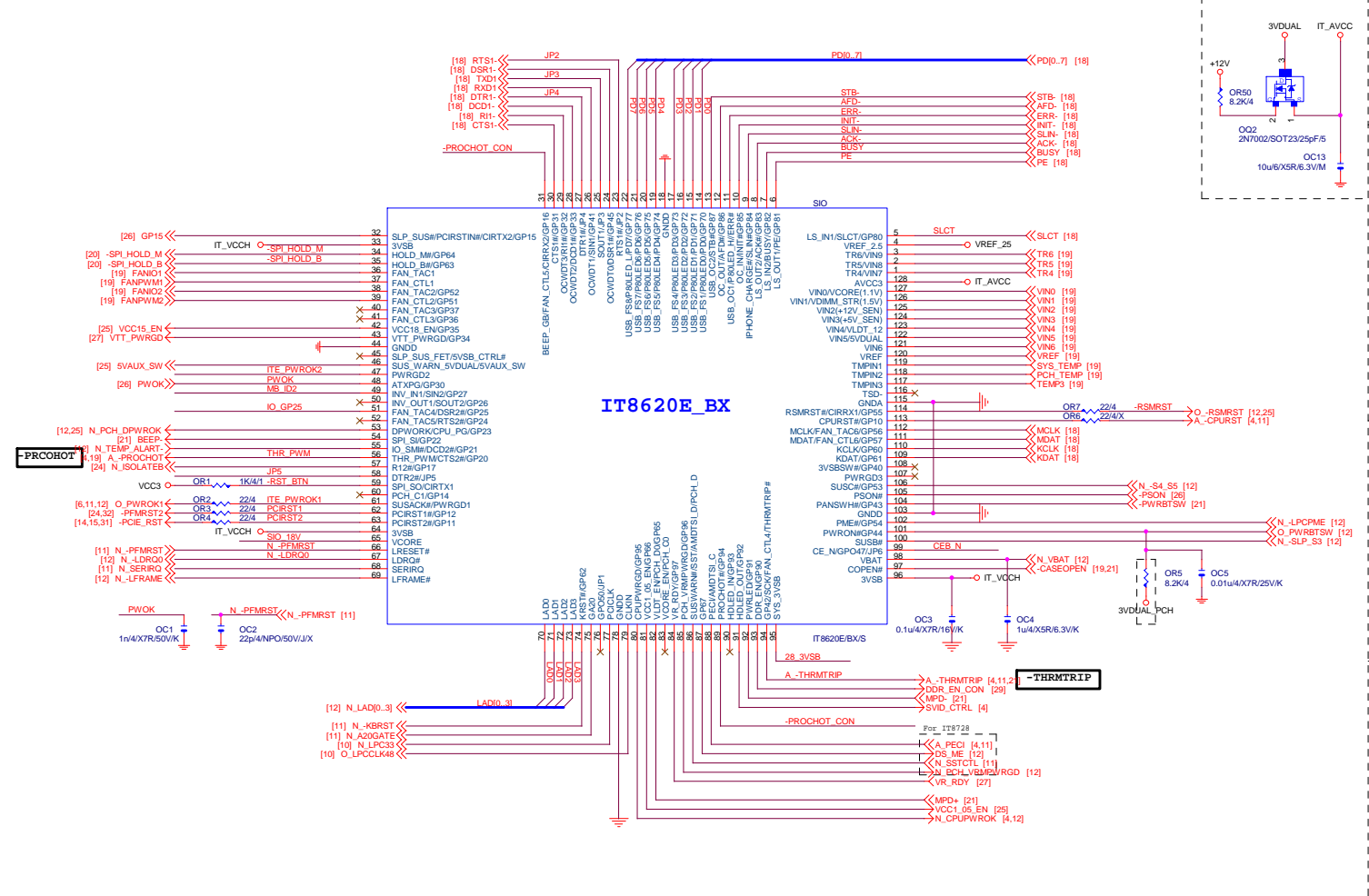


PCI CAP



Gigabyte Technology		
Title PCI SLOT 1&2		
Size Custom	Document Number GA-H81M-S2VP	Rev 1.0
Date:	Thursday, December 19, 2013	Sheet 16 of 32

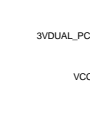
SIO IT8620



FIX ATX 插拔漏電



PWR SHT



SIO PU



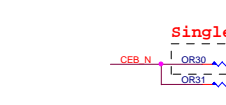
SIO STRAP



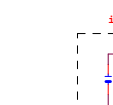
Power leakage



DUAL BIOS OPT STRAP



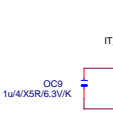
SIO 18V



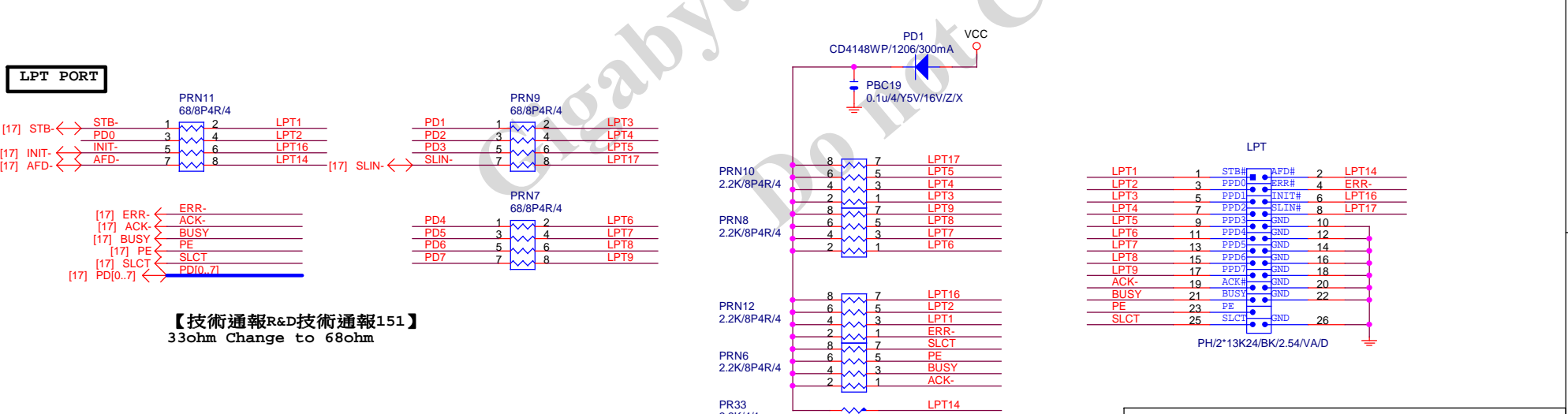
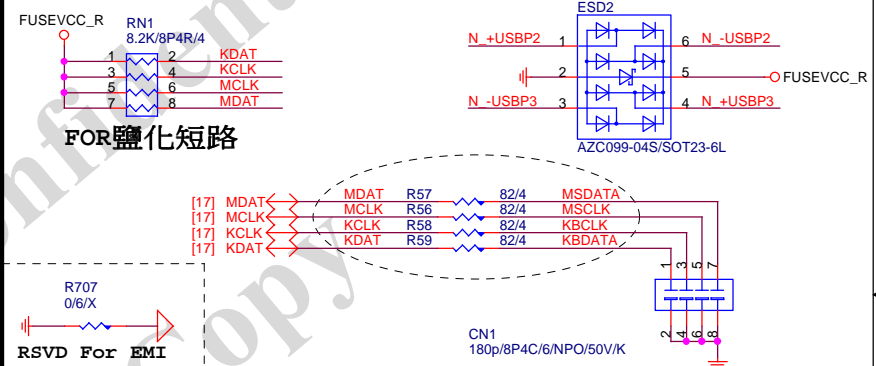
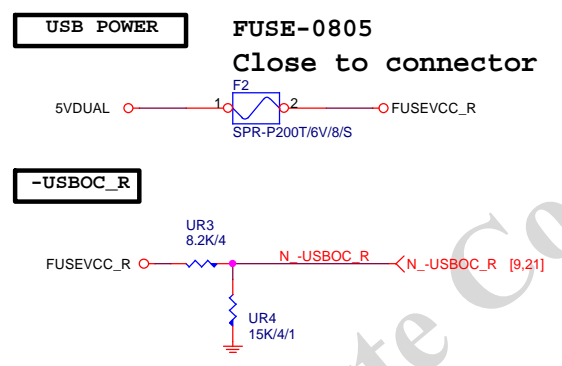
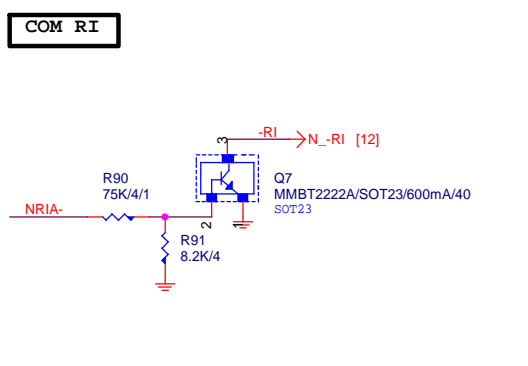
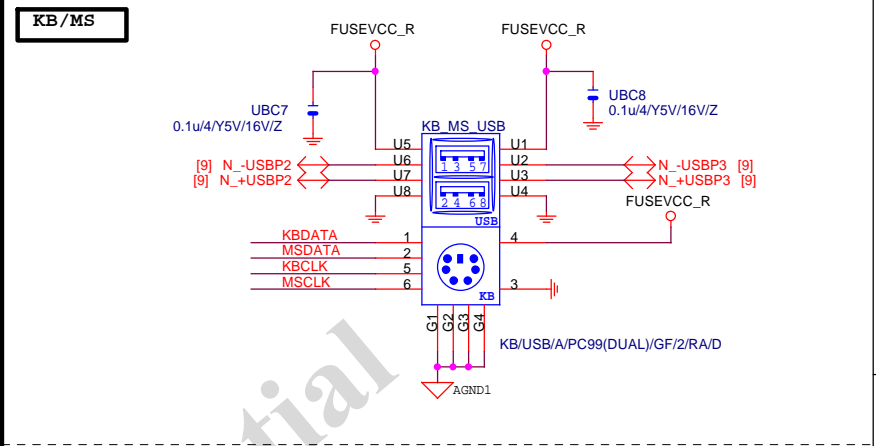
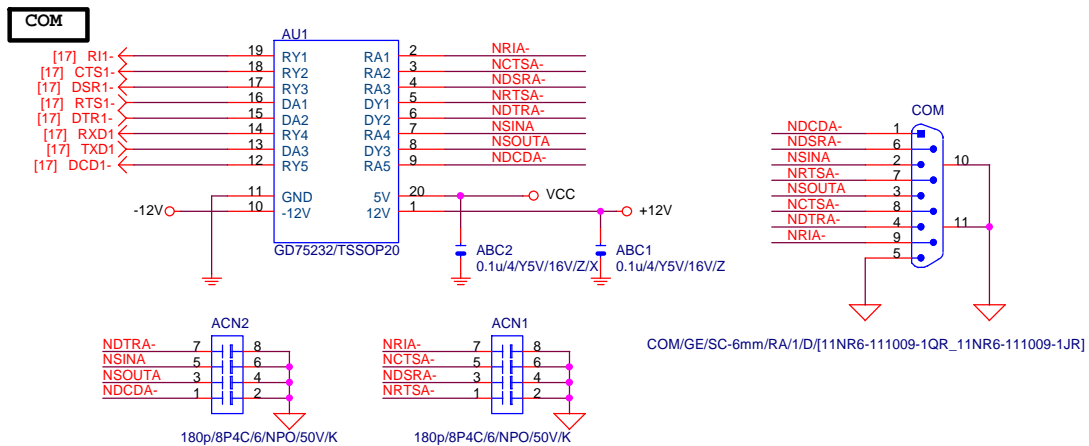
MB ID



SIO CAP



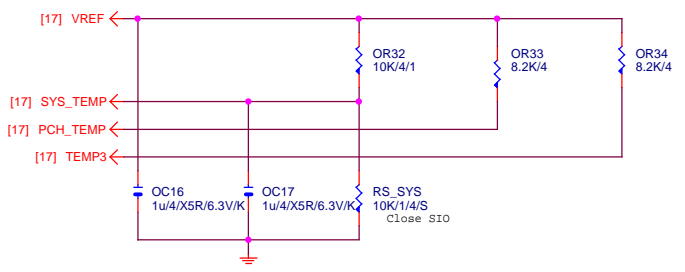
Gigabyte Technology		
Title	PCH GPIO, CTRL, AUDIO	
Size	Document Number	Rev
C	GA-H81M-S2VP	1.0
Date:	Thursday, December 19, 2013	Sheet 17 of 32



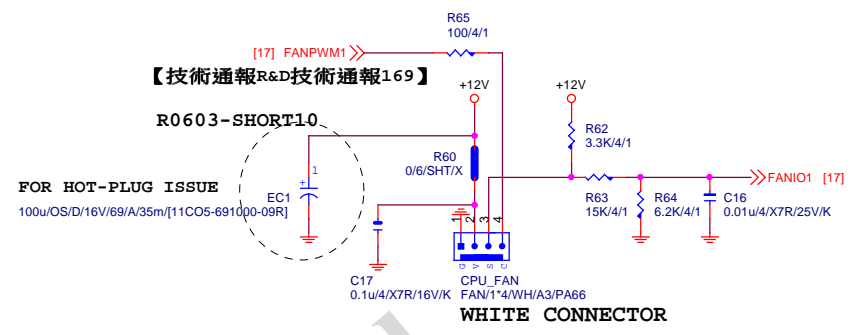
【技術通報R&D技術通報151】
33ohm Change to 68ohm

Gigabyte Technology		
Title COM,-RI,KB_USB,USB_ESATA,-PROCHOT		
Size Custom	Document Number GA-H81M-S2VP	Rev 1.0
Date: Thursday, December 19, 2013	Sheet 18	of 32

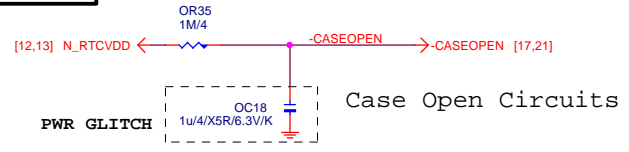
TEMP H/W MONITOR



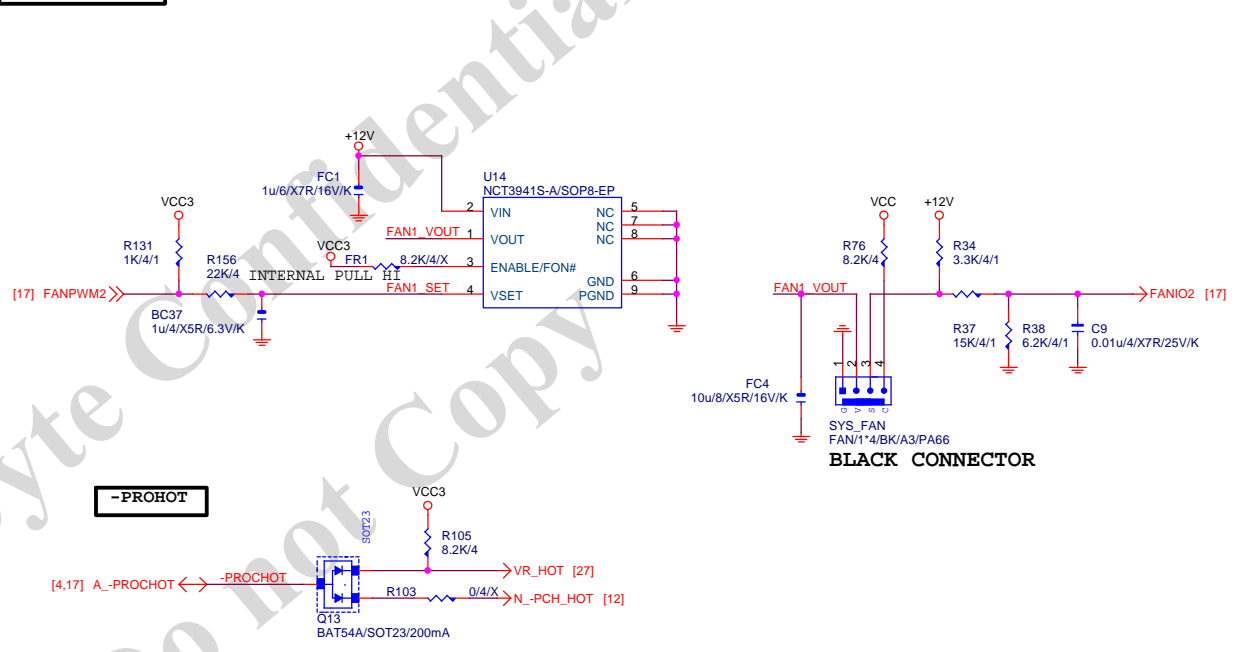
CPU SMART FAN



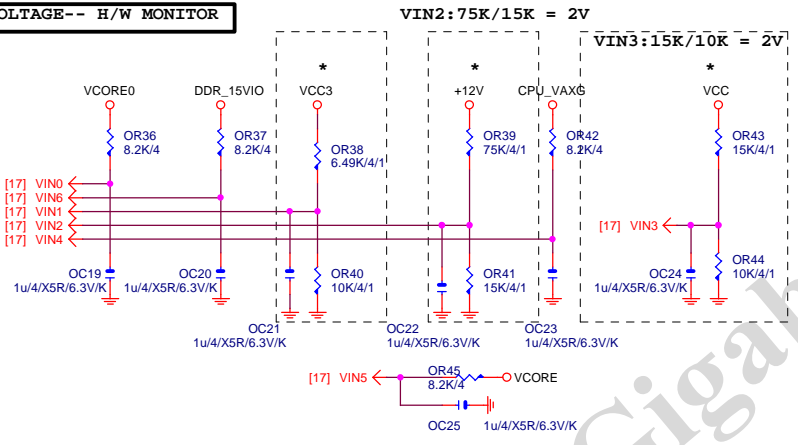
CASE OPEN



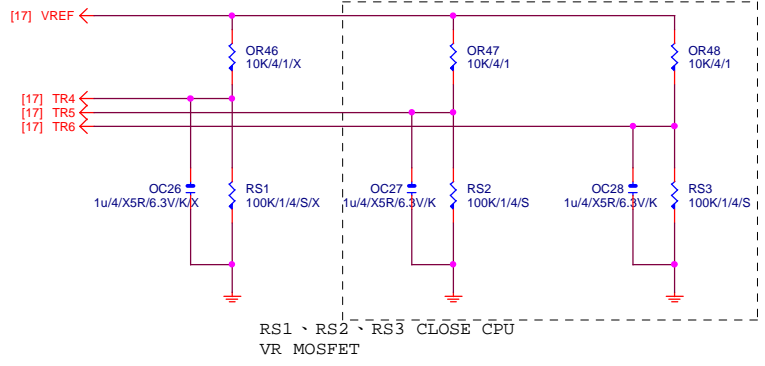
SYS SMART FAN



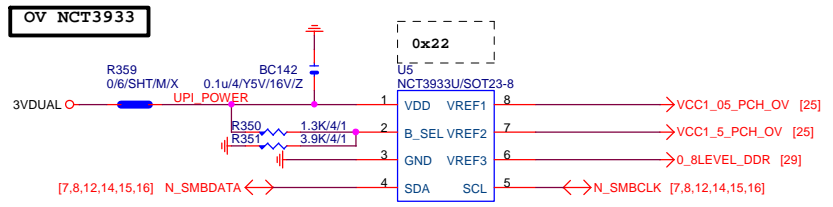
VOLTAGE-- H/W MONITOR

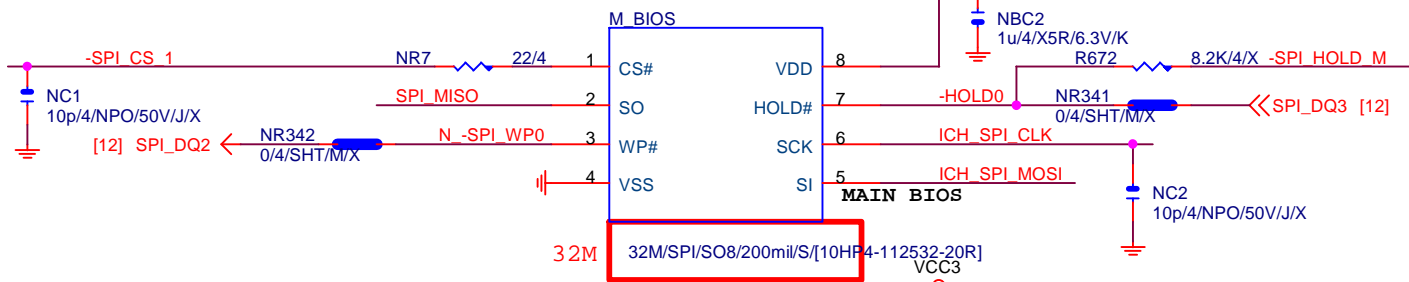


TR5 & TR6

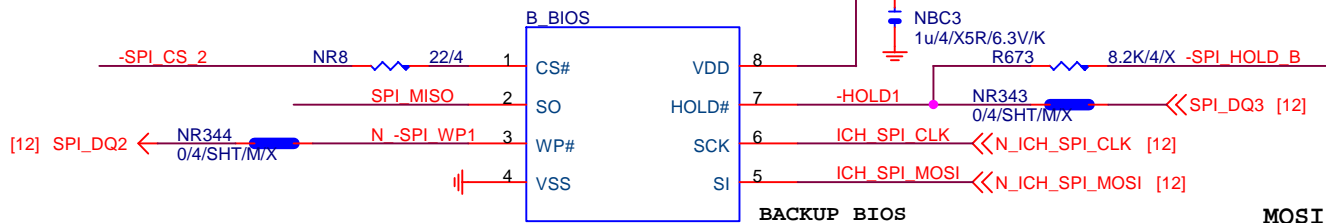


接pwm feedback pin





32M/SPI/SO8/200mil/S/[10HP4-112532-20R]

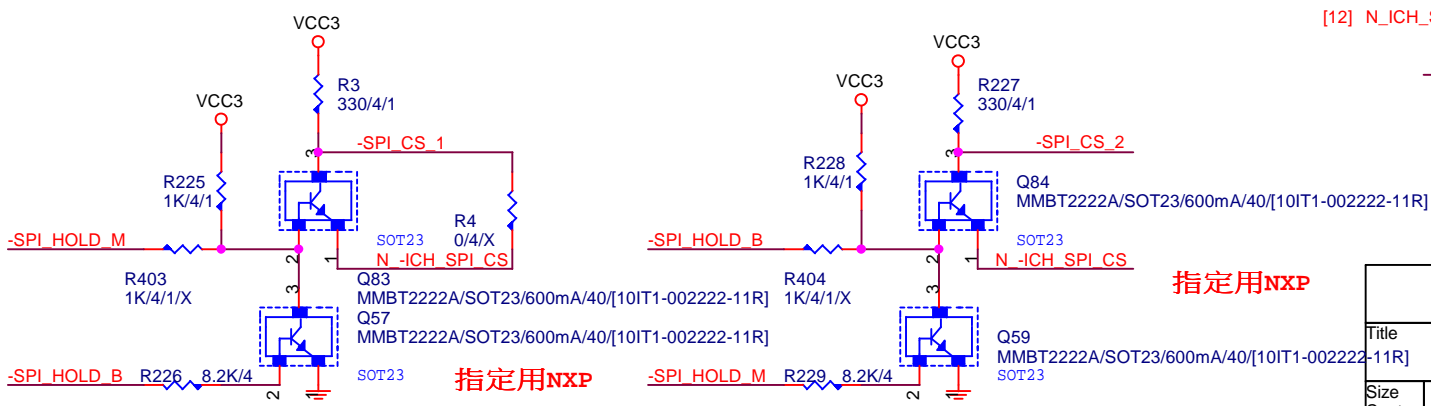
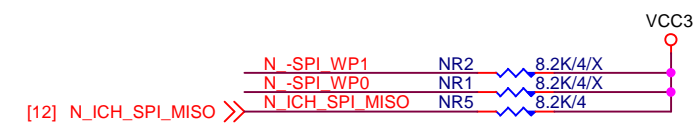
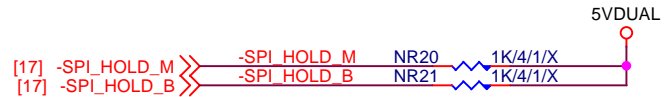
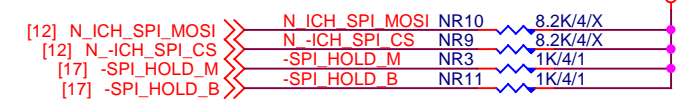


32M/SPI/SO8/200mil/S/X

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

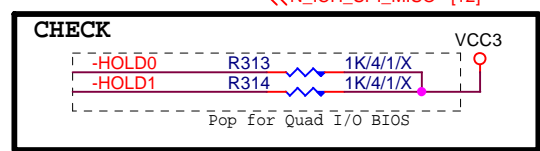
1 means floating
0 means PD 1K

MOSI For DMI RX Termination Voltage



指定用NXP

指定用NXP



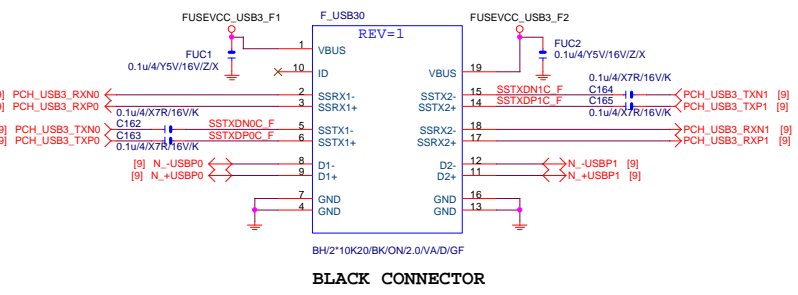
Gigabyte Technology

DUAL BIOS

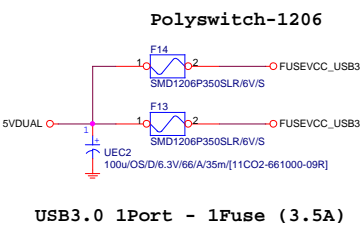
GA-H81M-S2VP

Title	Document Number		Rev
Size	Custom		1.0
Date:	Thursday, December 19, 2013	Sheet	20 of 32

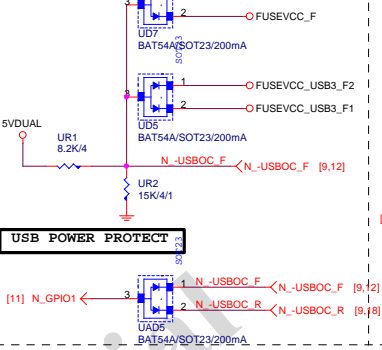
F_USB30



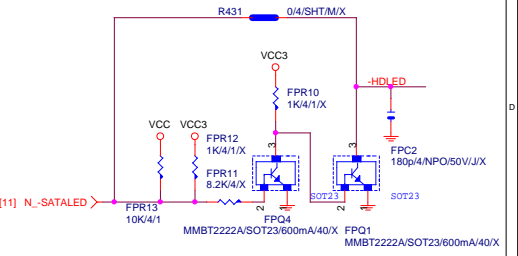
USB30_20 PWR



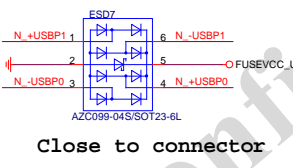
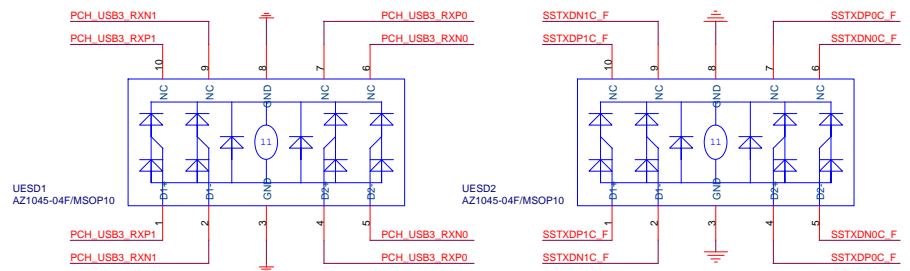
-USBOC_F



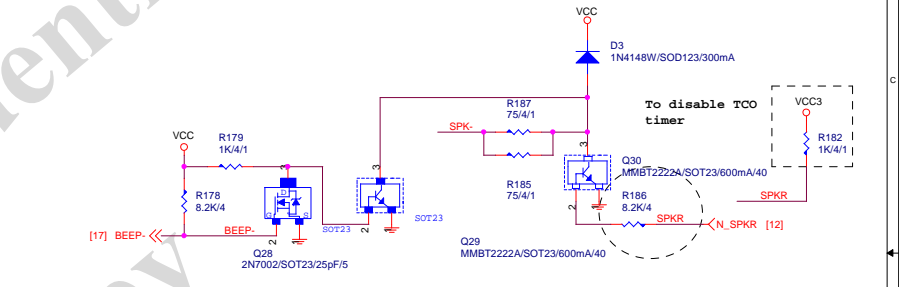
SATA LED



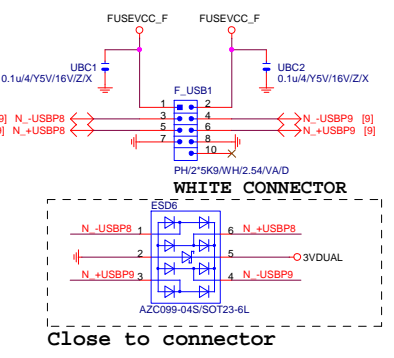
F_USB30 ESD PROTECT



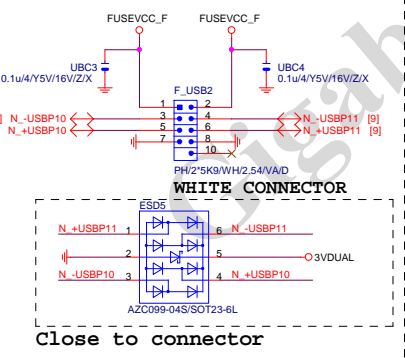
SPKR



FRONT USB1

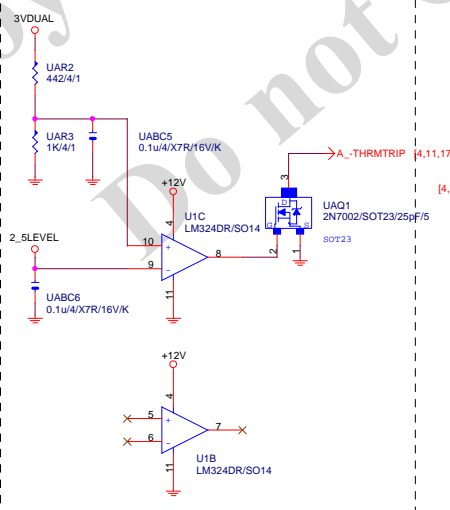


FRONT USB2

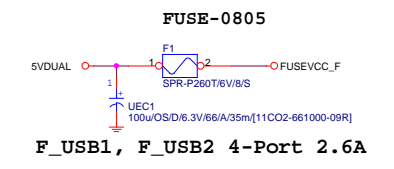
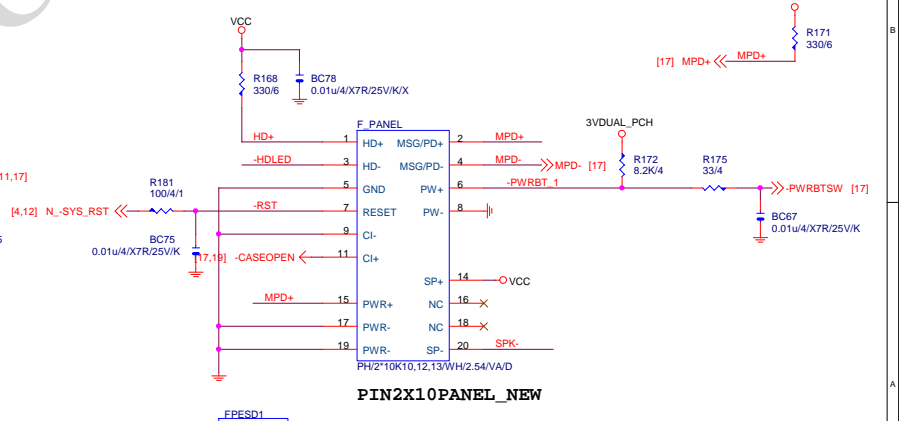


USB2.0 Signal & power short protection

USB2.0 Signal set 4.85V (if bigger than 4.95V, chip maybe fail)
Protection set --> 3VUUAL=3.6V

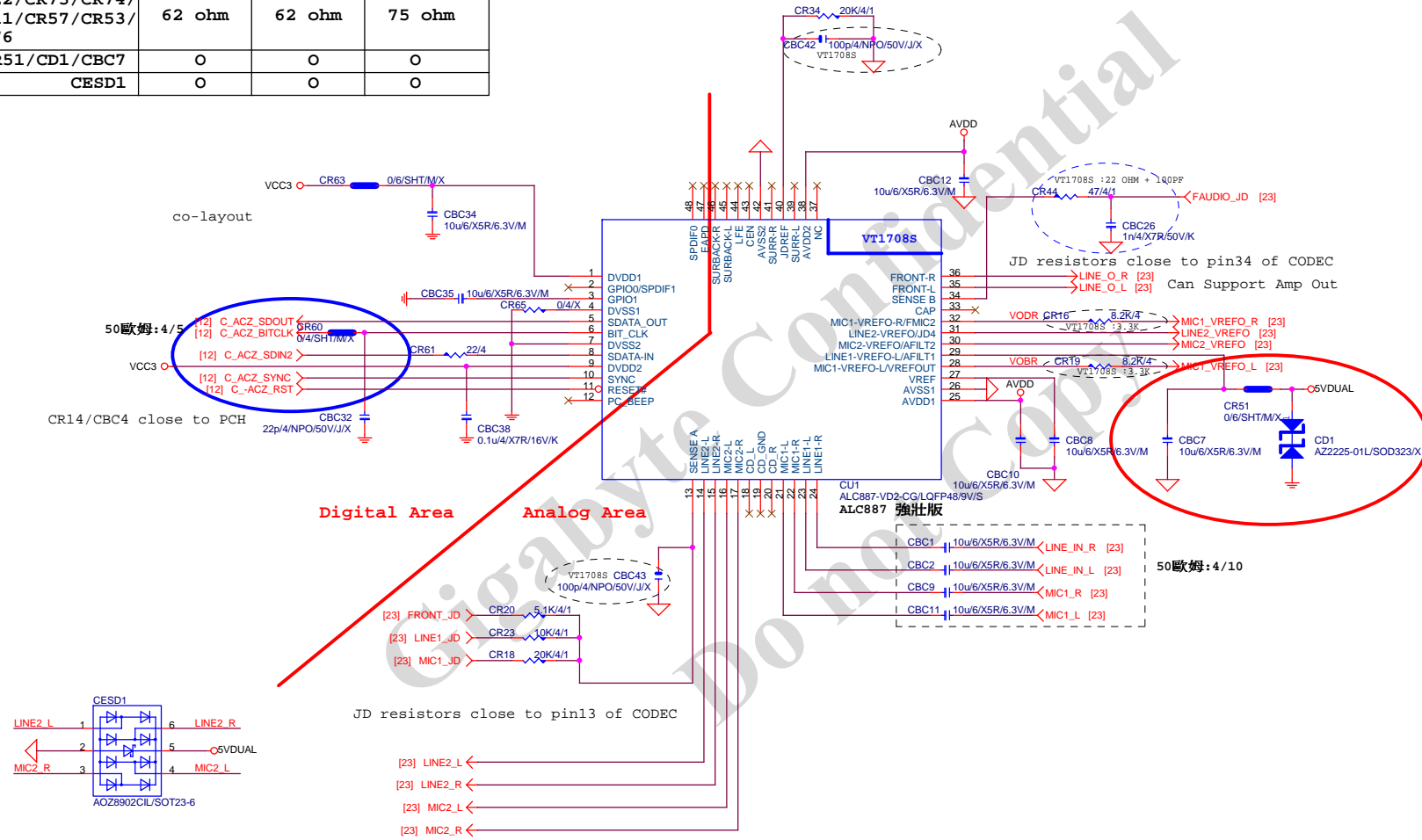


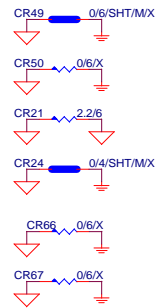
INTEL FRONT PANEL



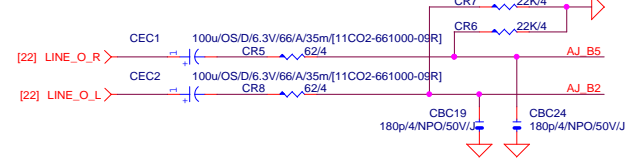
Gigabyte Technology		
FP,F_USB,USB PWR,SPKR,SATA LED		
Size Custom	Document Number	Rev 1.0
Date: Thursday, December 19, 2013	Sheet 21	of 32

	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	O	O	O
CESD1	O	O	O



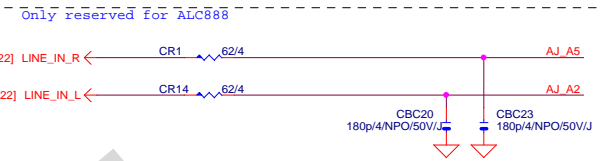


LINE-OUT

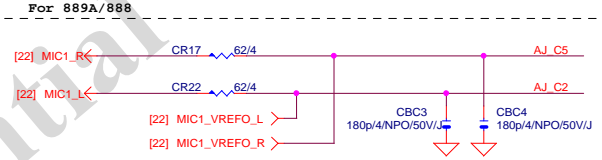


LINE-IN

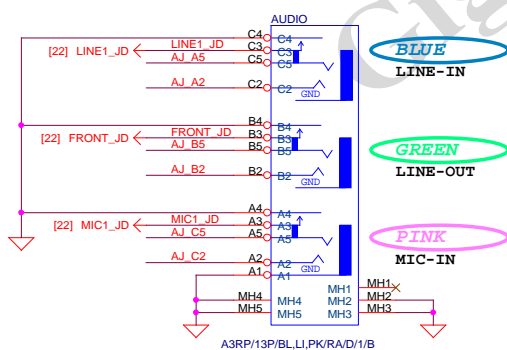
Verify MIC function in LINE-in



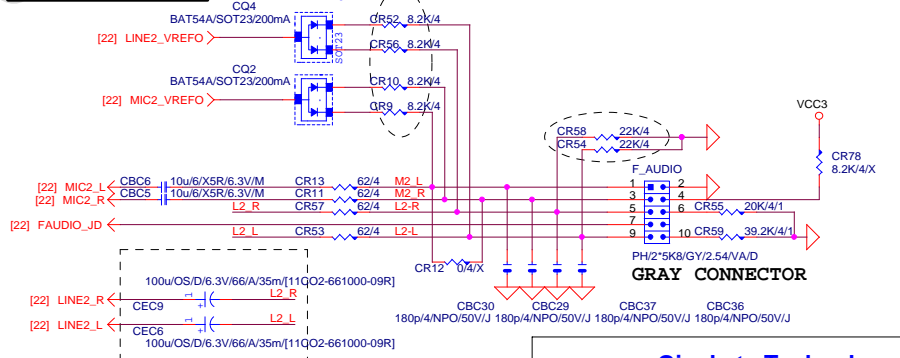
MIC-IN



SPDIF_OUT

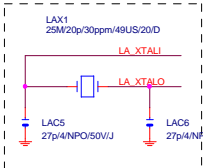
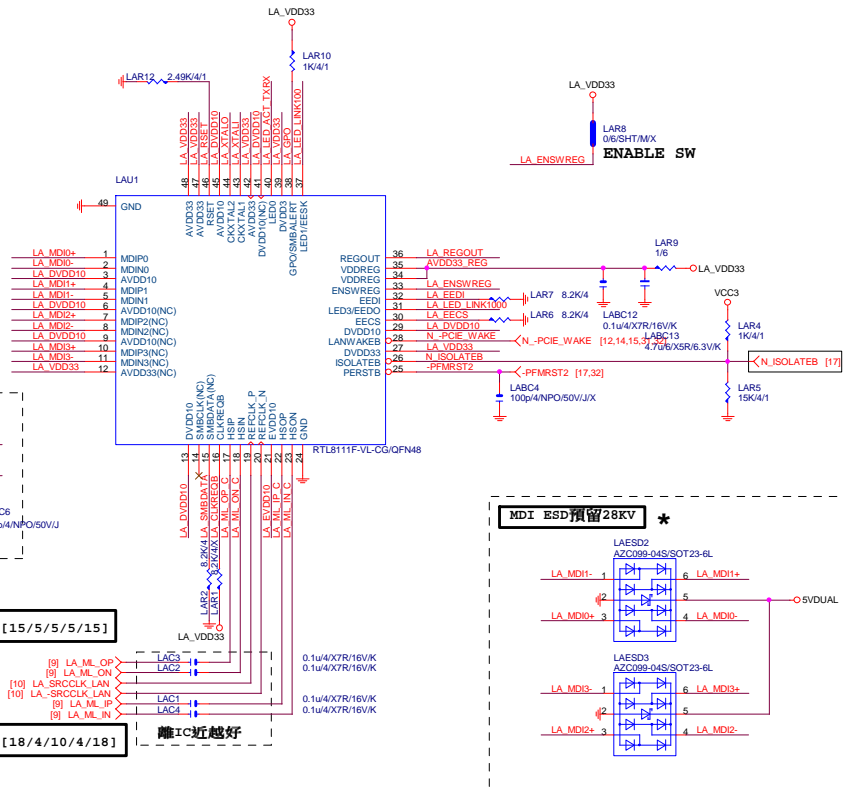


AZALIA FRONT PANEL



Gigabyte Technology			
AUDIO JACK			
Title	GA-H81M-S2VP		Rev
Size	Document Number	1.0	
Custom			
Date:	Thursday, December 19, 2013	Sheet	23 of 32

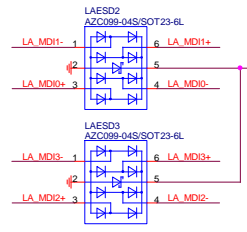
LAN:RTL8111F/VB/VL



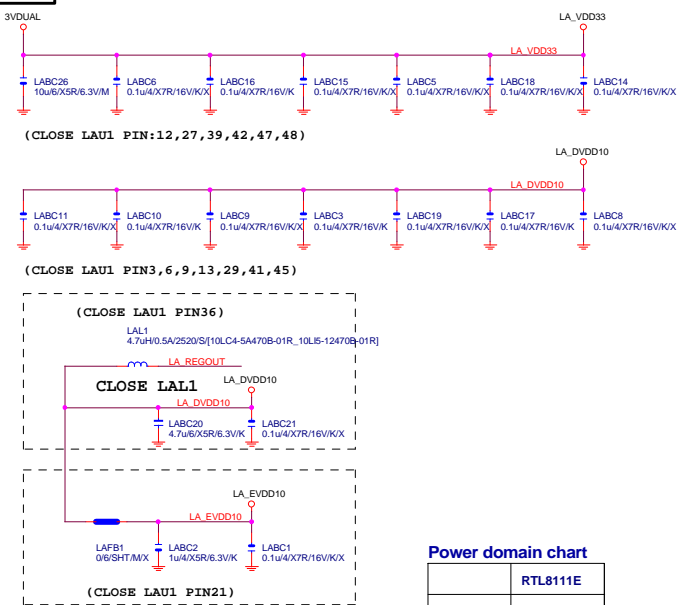
LA_ML-->80歐姆:[15/5/5/15]

SRCCLK-->50歐姆:[18/4/10/4/18]

MDI ESD預留28KV *



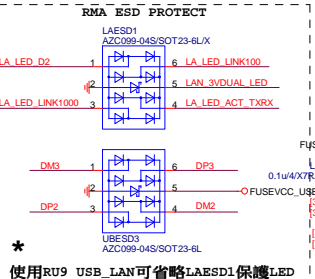
LAN POWER



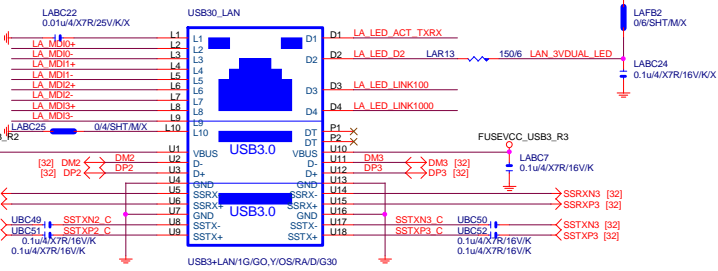
Power domain chart

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

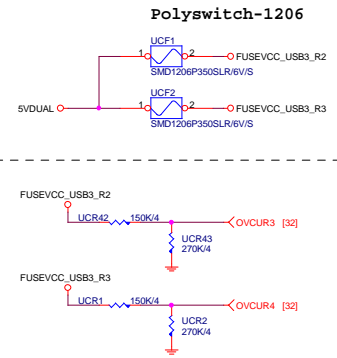
USB LAN CONNECTOR



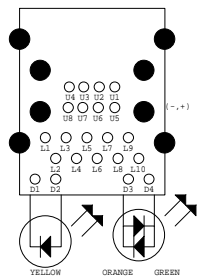
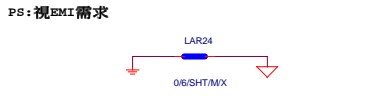
LA_MDI-->100歐姆:[20/4/8/4/20]



USB POWER



EMI SHORT PAD

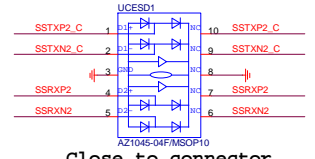


Dual Color LED
D4 D3 Green
D4 D3 Orange
Single Color LED
D2 D1 Yellow

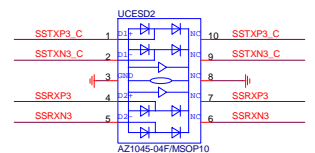
注意:USB PORT(目前:暫代6,7PORT)
USB-->90歐姆:[15/4.5/7.5/4.5/15]

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		



Close to connector



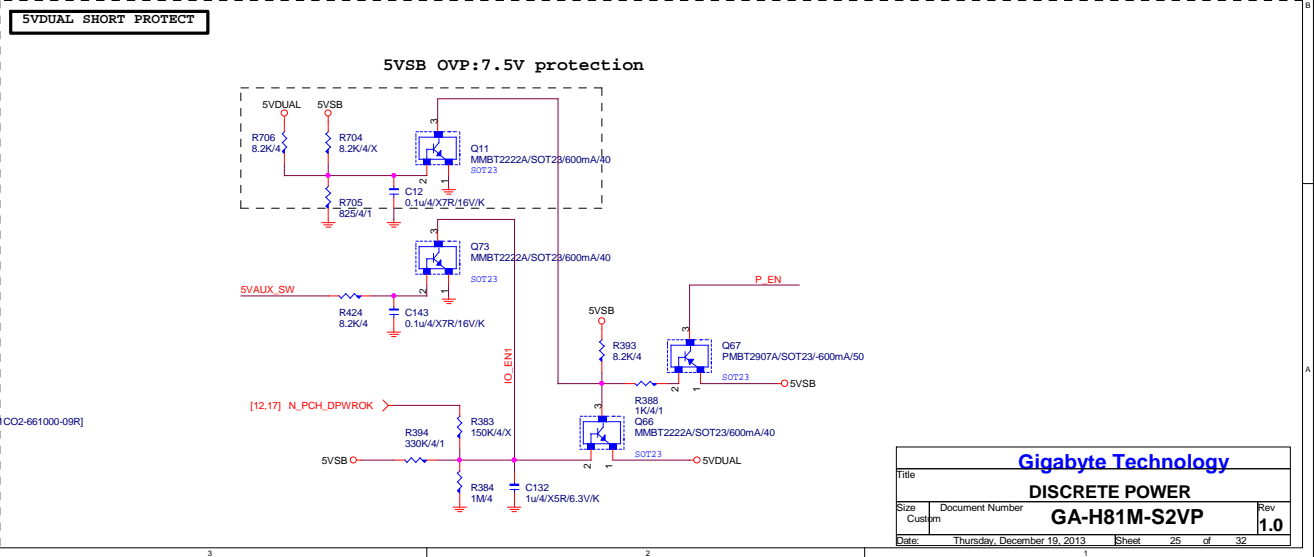
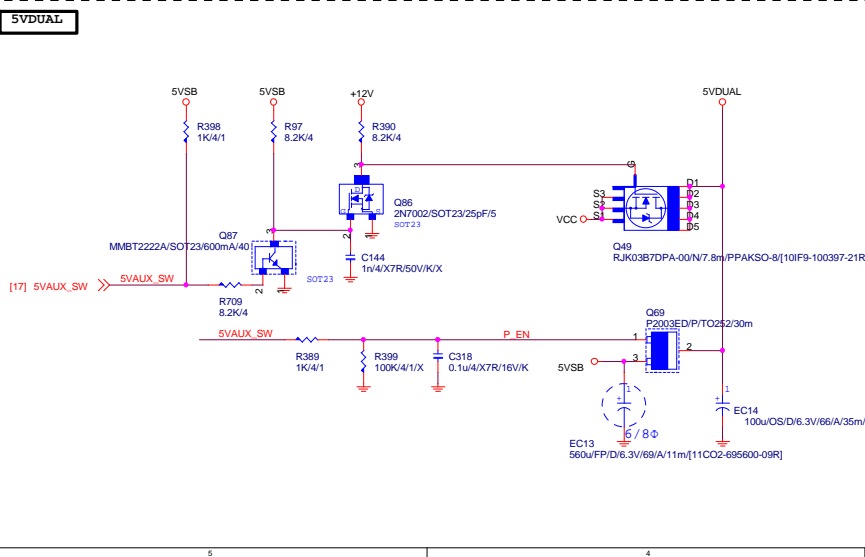
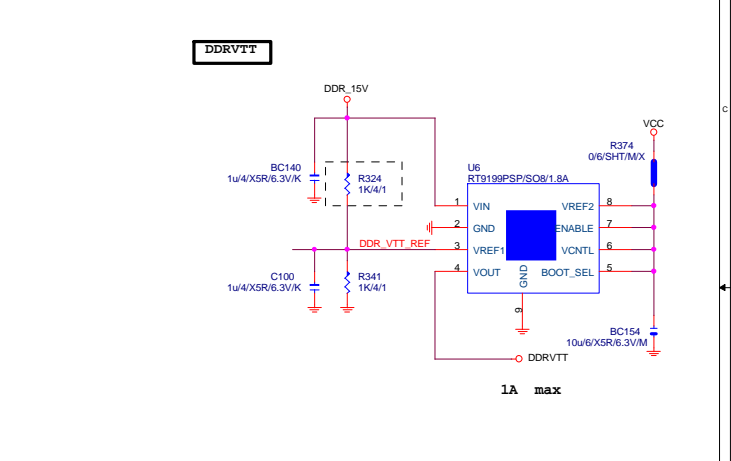
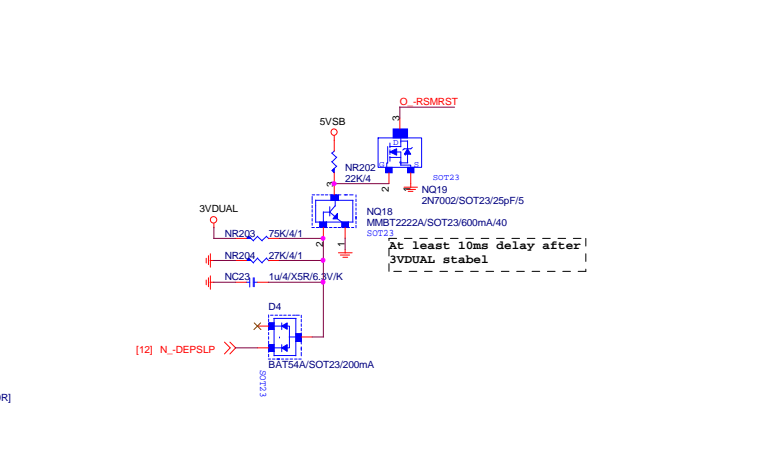
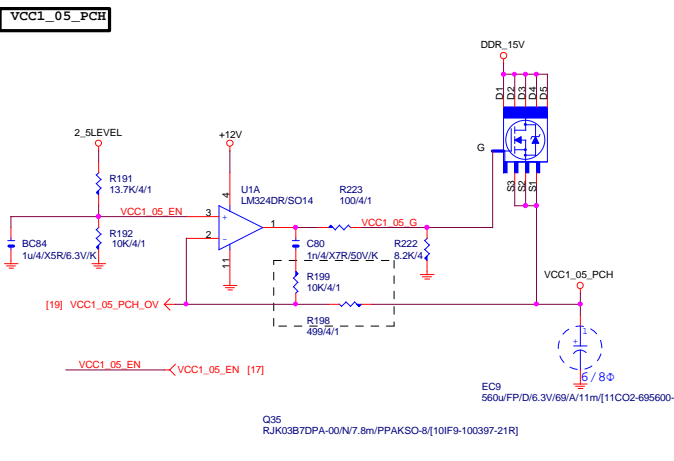
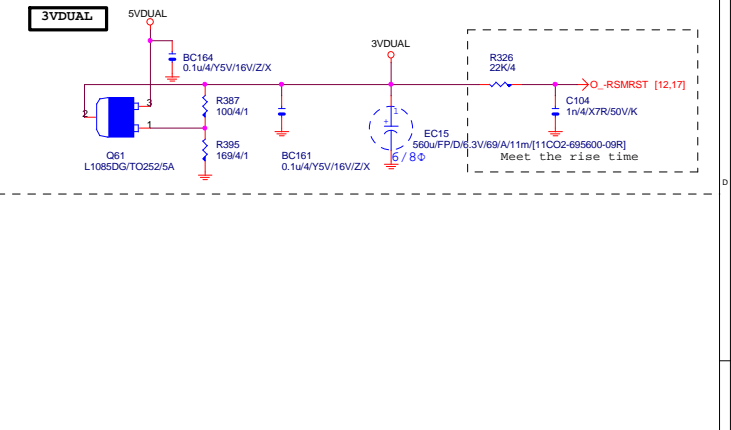
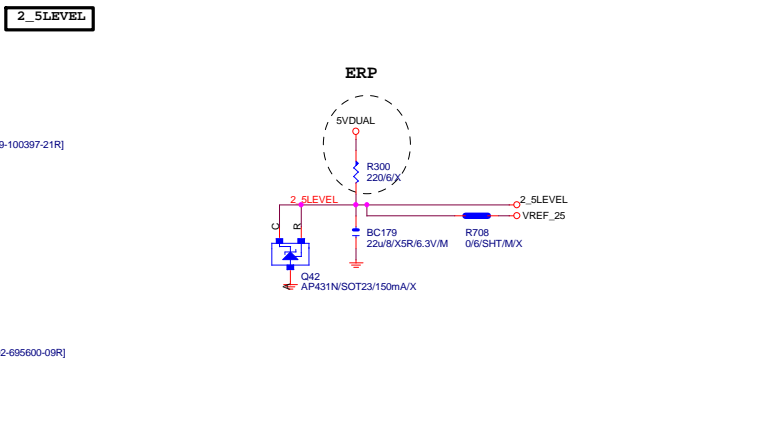
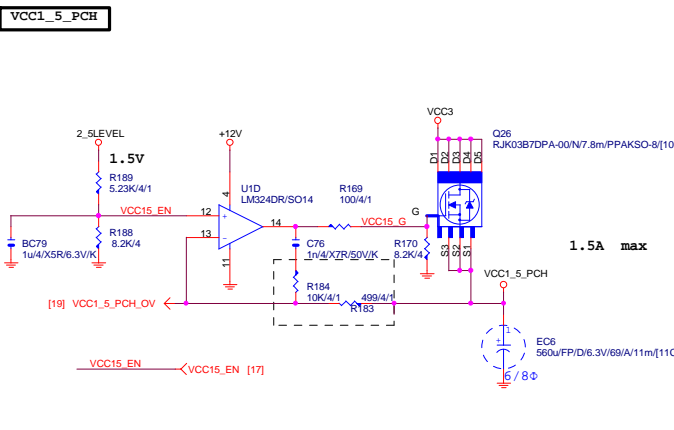
Close to connector

Gigabyte Technology

Title: Realtek RTL8111G

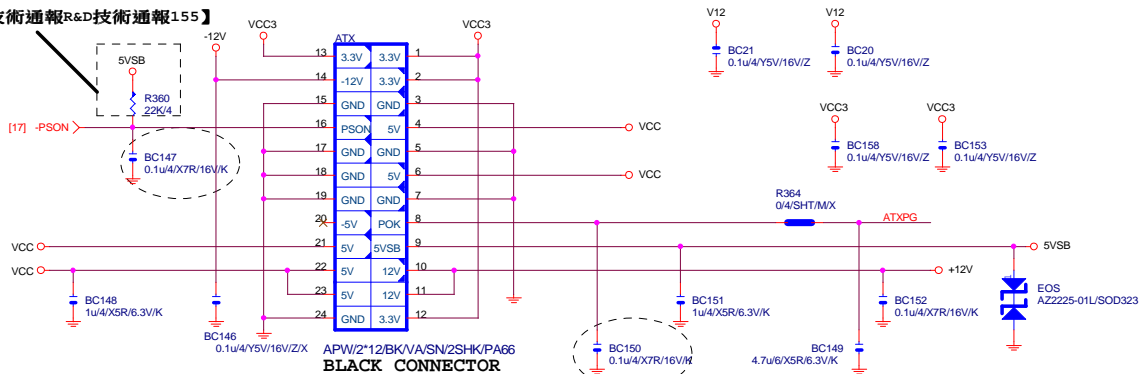
Size: Document Number GA-H81M-S2VP Rev 1.0

Date: Thursday, December 19, 2013 Sheet 24 of 32



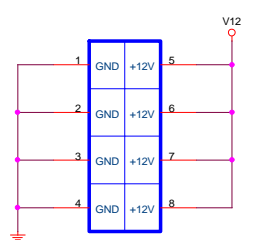
ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】



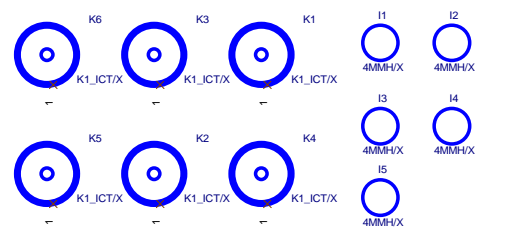
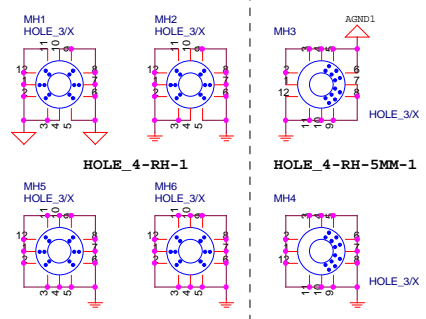
BLACK CONNECTOR

ATXX4 POWER CONNECTOR



ATX 12V 2X4
APW/2 4/BK/OC/P/4.2V/A/SN/OH:Location ATX_12V_2X4

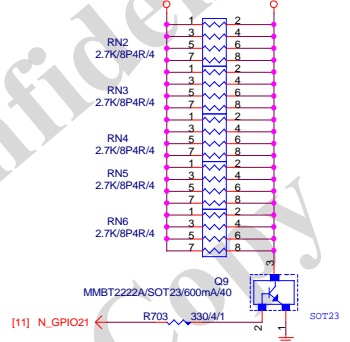
BLACK CONNECTOR



To prevent the 5VSB under loading when boot

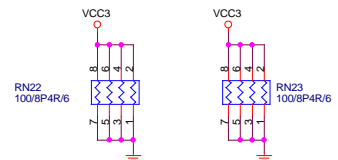
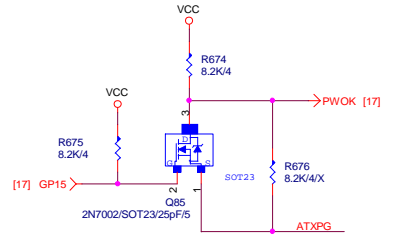
【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



PWOK PATCH

【技術通報R&D技術通報154】

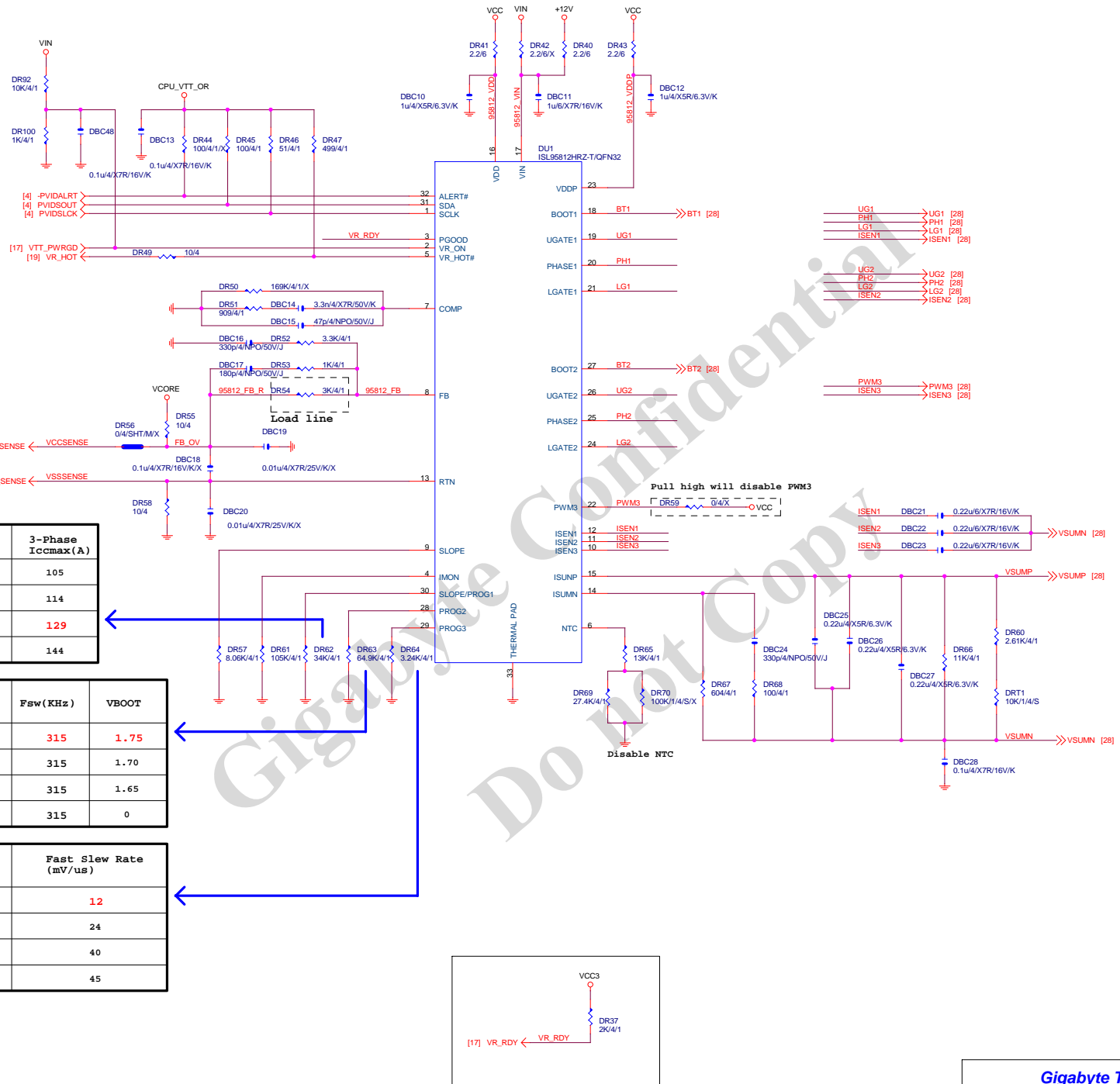


FIX PWR MINMUN LOAD

Gigabyte Technology

ATX CONNECTOR

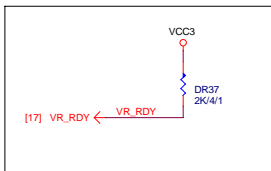
GA-H81M-S2VP



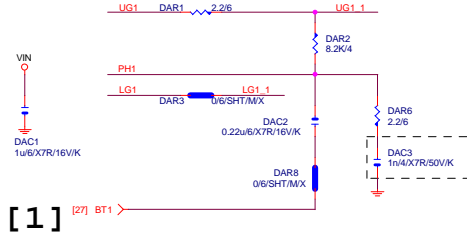
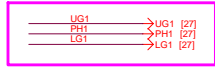
R_PROG1 (Kohm)	3-Phase Iccmax (A)
24.9	105
28.7	114
34.0	129
42.2	144

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

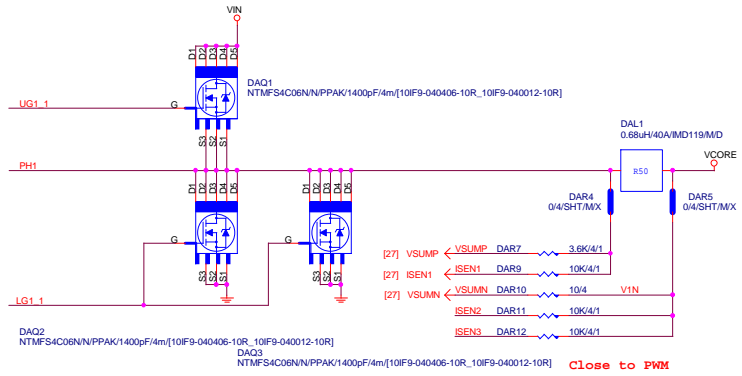
R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45



PHASE 1

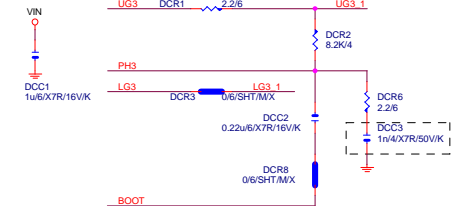
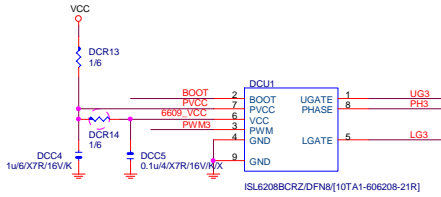


[1] [27] BT1

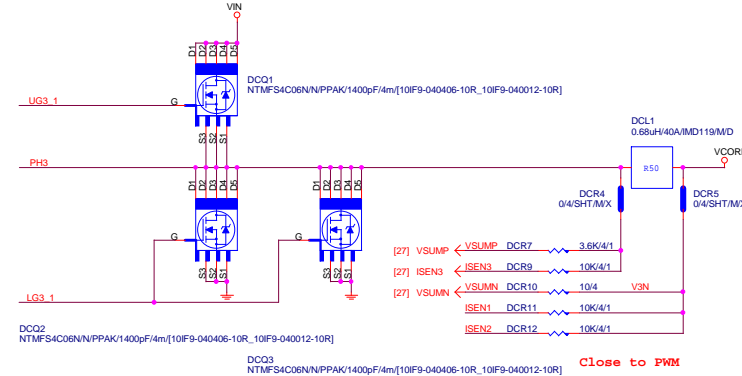


Close to PWM

PHASE 3

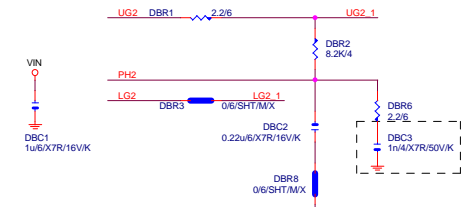
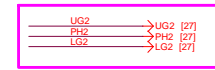


[3]

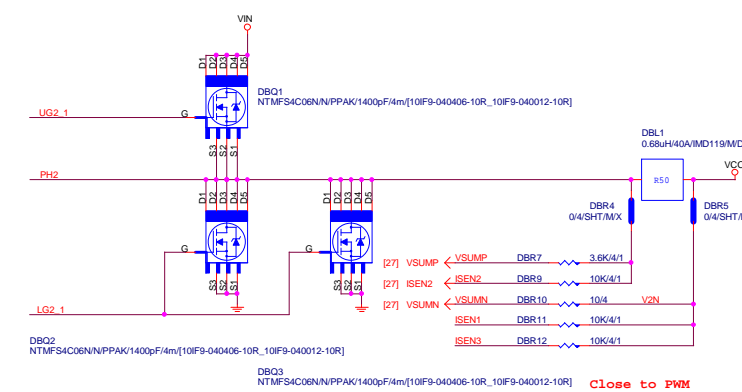


Close to PWM

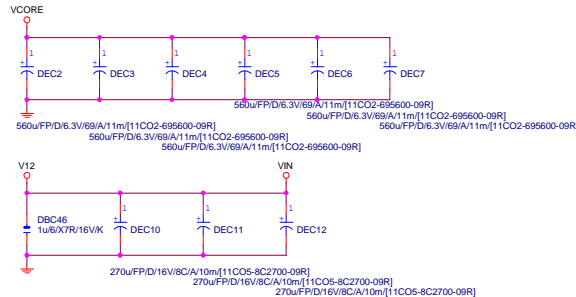
PHASE 2



[2] [27] BT2

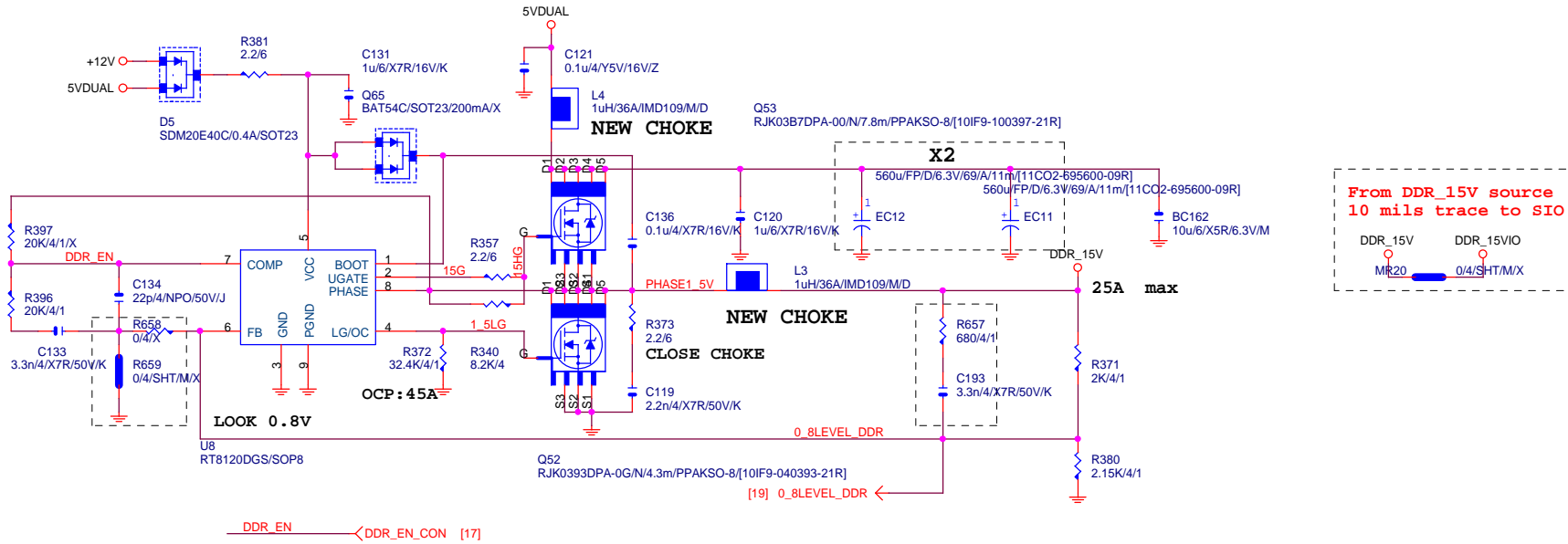


Close to PWM



Gigabyte Technology		
Title: CPU CORE VR-2		
Size: Custom	Document Number: GA-H81M-S2VP	Rev: 1.0
Date: Thursday, December 10, 2013	Sheet: 28	of 32

DDR1.5V



PWR_SEQ

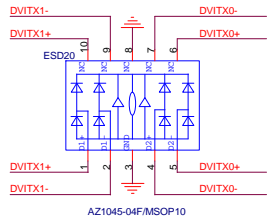
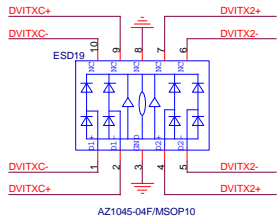
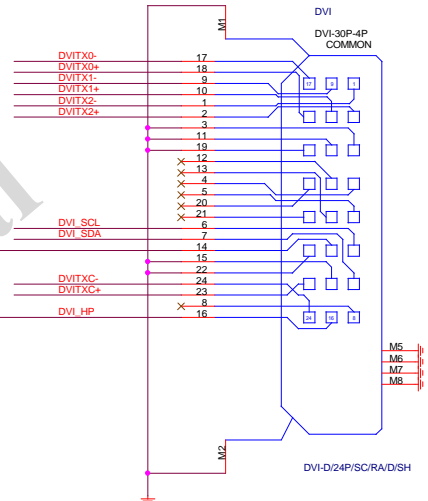
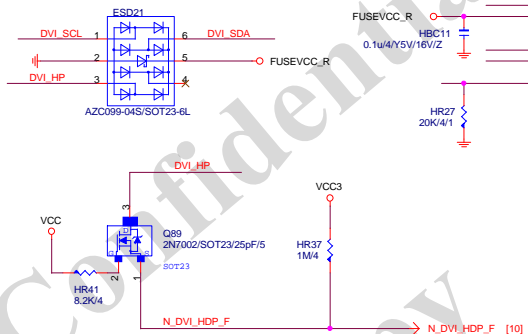
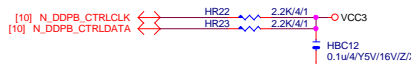
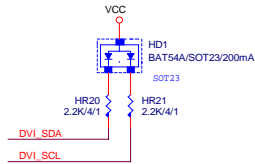
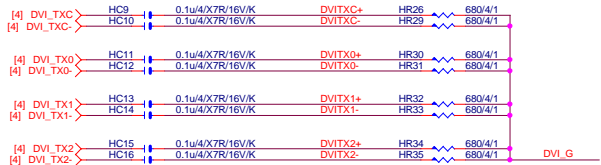
VIN=5V, VOUT=1.5V, IOU=25A, PHASE=1
 IRMS=11.45A
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A
 Coefficient=1.7(85°C), 1(105°C)
 VIN Ripple current=4.7X1.7=7.99A(85°C)
 -->故固態電容須2X7.99=15.98>11.45A

Rocset=(Iocp*Lgate, rdson)/Iocset
 Rocset=(45A*6.7mOhm)/10uA = 30K
 Iocset=10uA

Gigabyte Technology

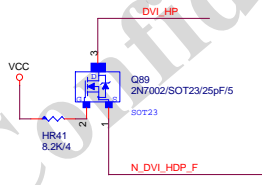
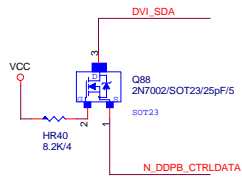
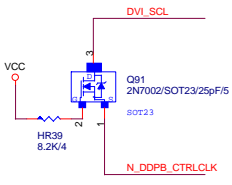
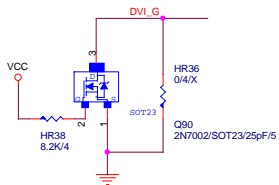
Title			DDR POWER		
Size	Document Number	GA-H81M-S2VP			Rev
Custom					1.0
Date:	Thursday, December 19, 2013	Sheet	29	of	32

DVI LEVEL SHIFT



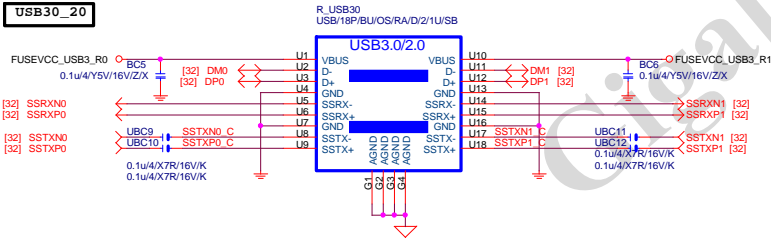
Close to connector

Close to connector

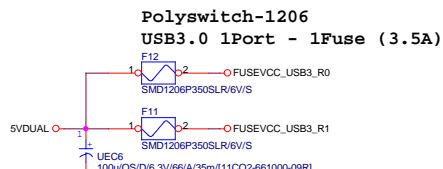


USB30_20 ESD PROTECT

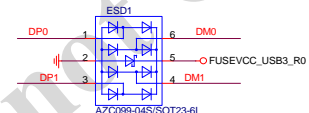
USB30_20



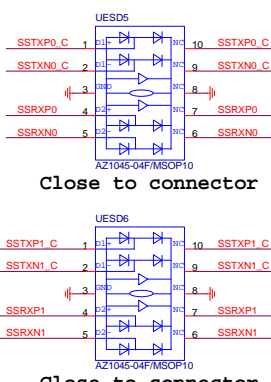
USB30_20 PWR



USB2.0 ESD



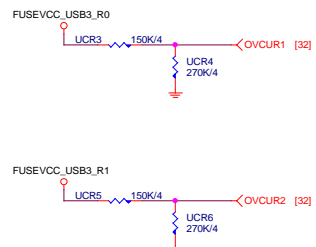
USB3.0 ESD



Close to connector

Close to connector

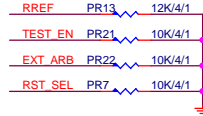
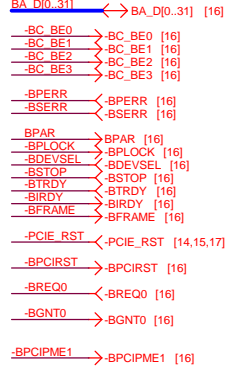
-USB0C_R



Gigabyte Technology		
File: DVI		
Size	Document Number	Rev
Customer	GA-H81M-S2VP	1.0
Date:	Thursday, December 19, 2013	Sheet 30 of 32

PCIE TO PCI

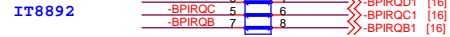
PCI:5/4/5 Impedance=50 +- 15%



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



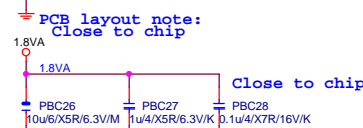
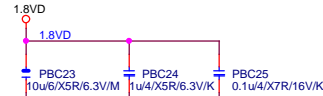
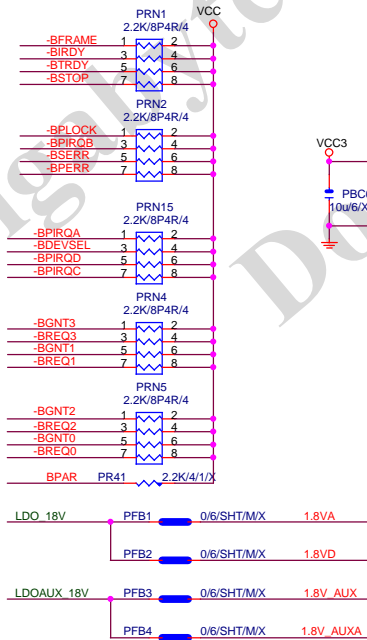
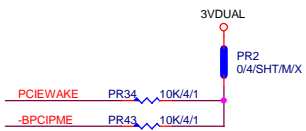
High: PCICLK INPUT form CLK Gen
Low: PCICLK OUTPUT form IT8893 chip



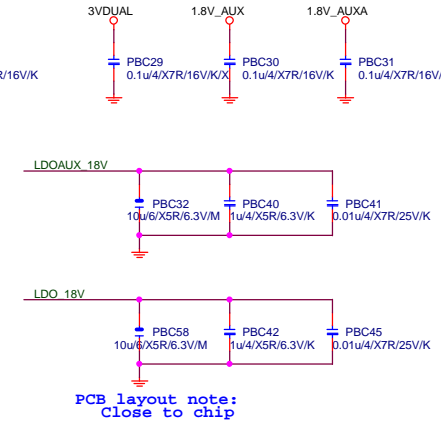
PCI slot



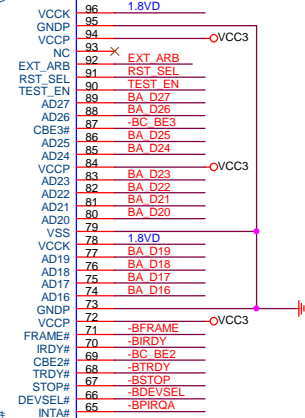
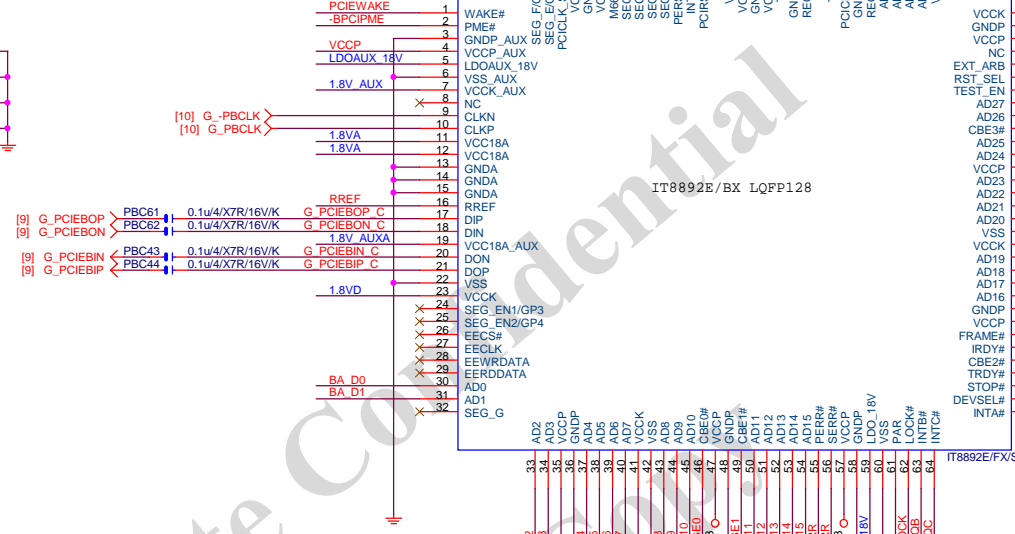
chipset side



PCB layout note: Close to chip

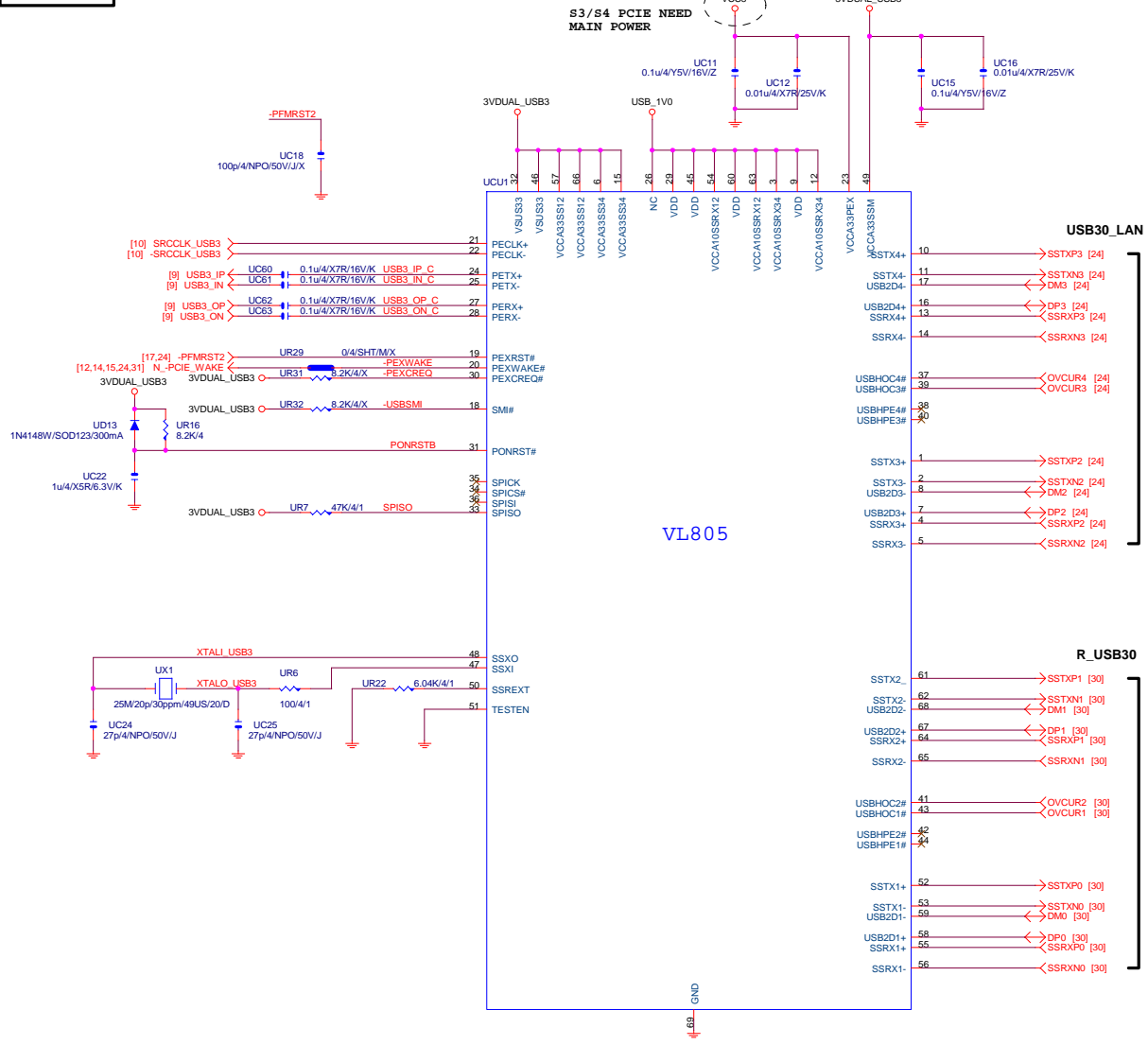


PCB layout note: Close to chip



Gigabyte Technology		
Title		
ITE IT8892E		
GA-H81M-S2VP		
Size Custom	Document Number	Rev 1.0
Date: Thursday, December 19, 2013	Sheet 31	of 32

USB3.0 VL805



USB3.0 POWER

