

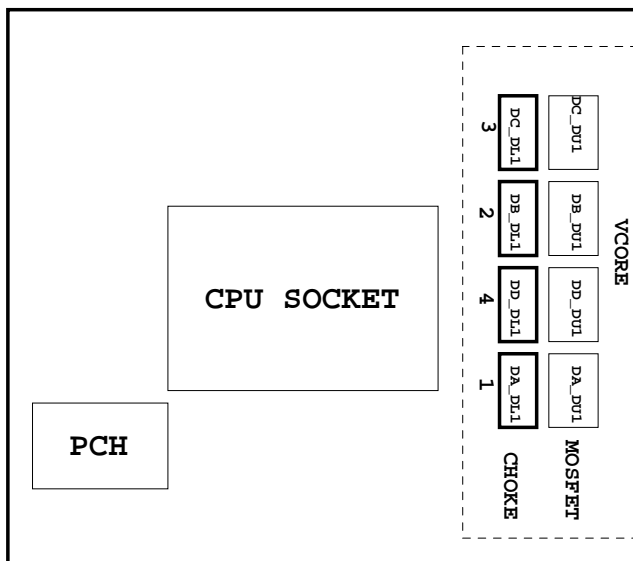
Model Name: GA-H97-HD3

SHEET TITLE

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	CPU_LGA1150-A
05	CPU_LGA1150-B
06	CPU_LGA1150-C
07	DDR III CHANNEL A
08	DDR III CHANNEL B
09	PCH_FDI,DMI,USB,PCIE
10	PCH_RGB,CLK BUFFER
11	PCH_HOST,SATA,PCI
12	PCH_GPIO,CTRL,AUDIO
13	PCH_PWR,GND
14	PCI EXPRESS*16 SLOT
15	PCIEX1*2 , PCIEX4 SLOT
16	ITE8892 PCI BRIDGE
17	PCI SLOT 1&2
18	I/O ITE8620
19	COM, -PROHOT, R_USB
20	Dual BIOS / LPT
21	ALC887-VD2 CODEC
22	REAR AUDIO JACK
23	VCORE_ ISL95820_1
24	VCORE_ ISL95820_2
25	DDR15V / M3 POWER
26	NCP3933 OVER VOLTAGE
27	DISCRETE POWER

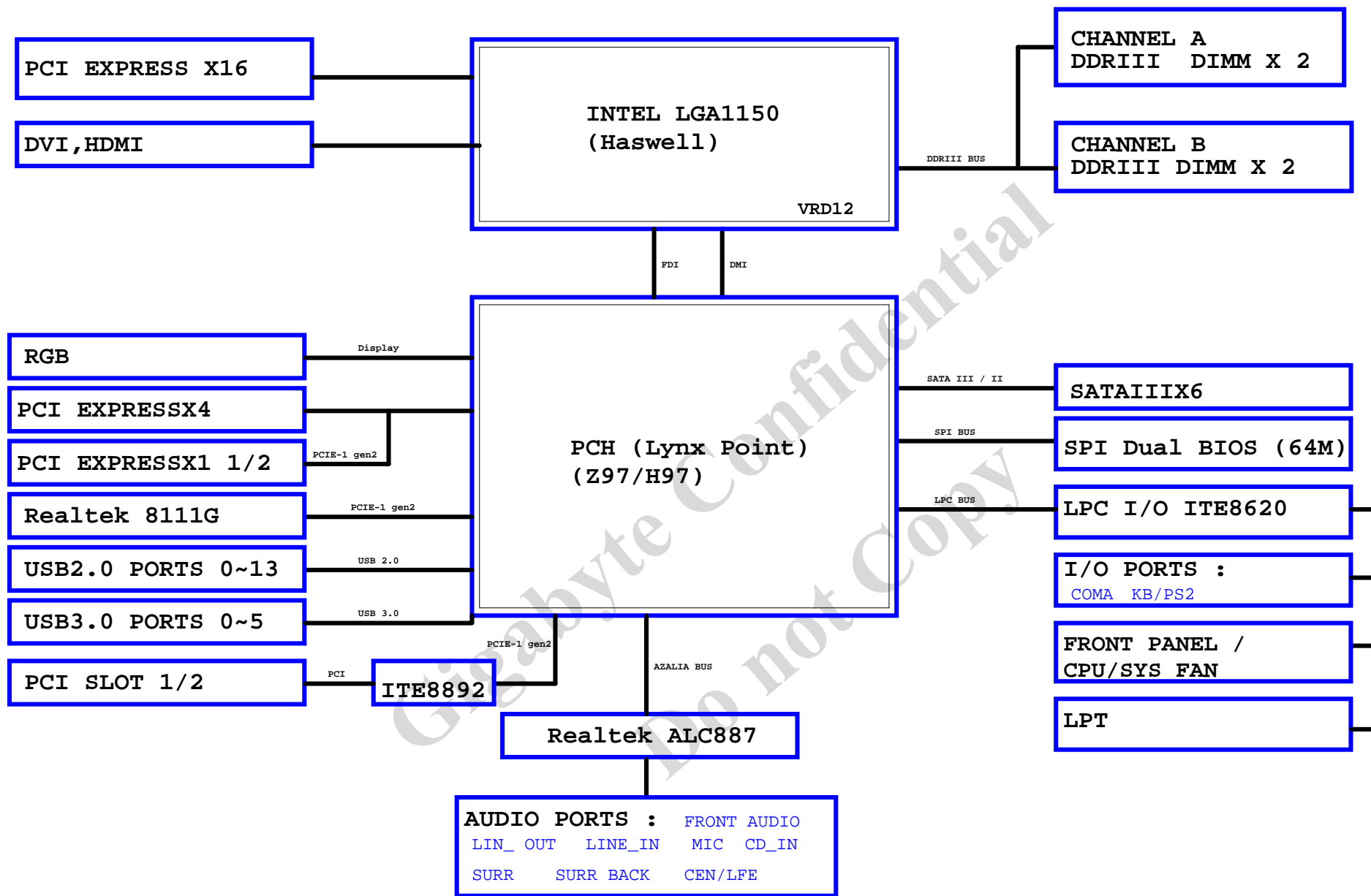
SHEET TITLE

28	F_PANEL , F_USB2.0/3.0
29	ATX POWER, CLOCK GEN
30	HWM , KB/MS , FAN CTRL
31	Realtek 8111G
32	DVI
33	HDMI
34	TABLE LIST
35	
36	
37	
38	
39	
40	

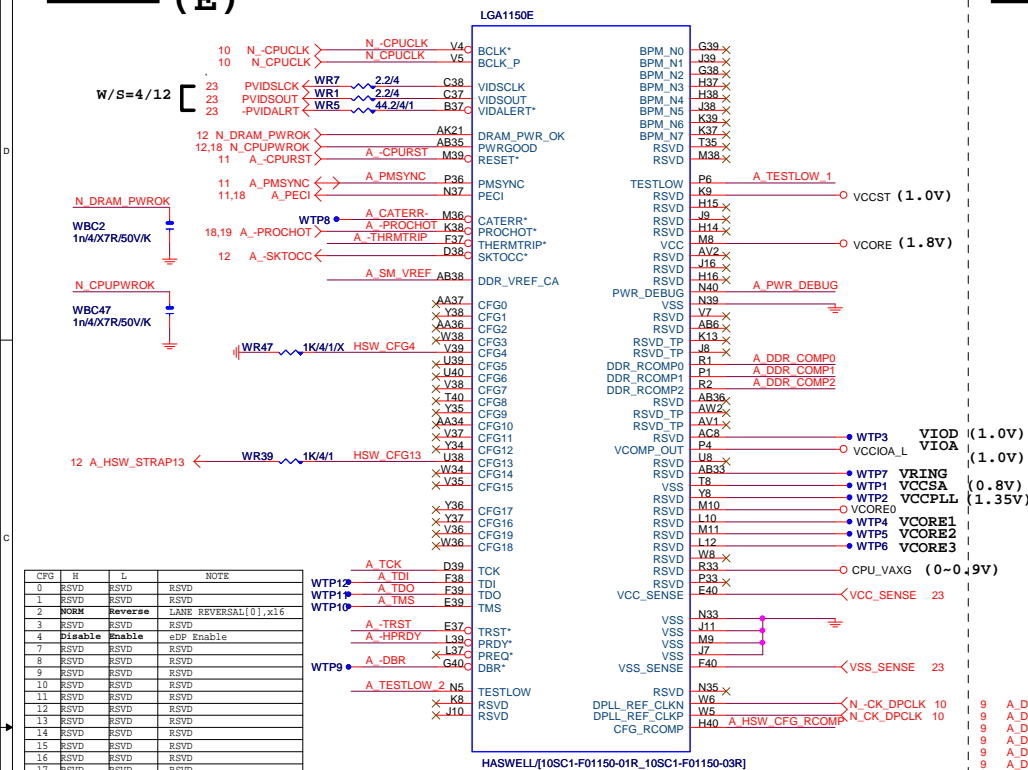


BLOCK DIAGRAM

www.xinxunwei.com 400-800-9990



LGA1150 (E)

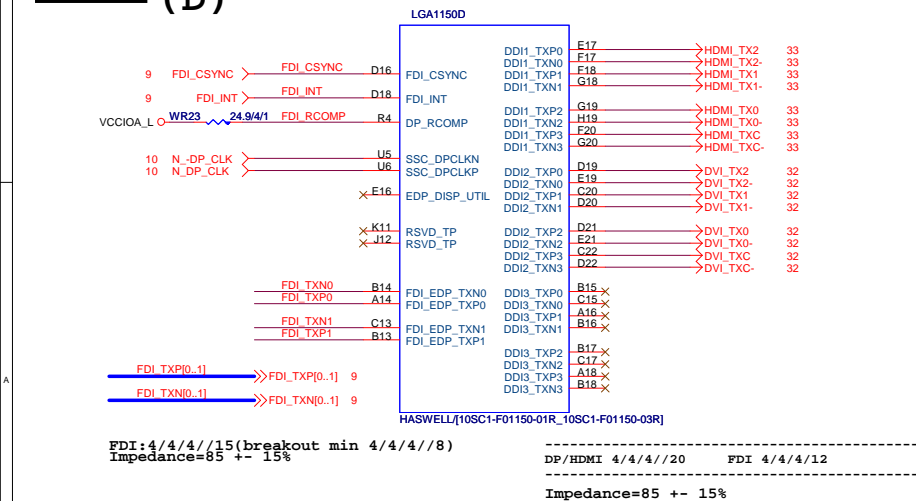


CFG	H	L	NOTE
0	R SVD	R SVD	R SVD
1	R SVD	R SVD	R SVD
2	Normal	Normal	LANE REVERSAL[0],x16
3	R SVD	R SVD	R SVD
4	Disable	Enable	eDE Enable
7	R SVD	R SVD	R SVD
8	R SVD	R SVD	R SVD
9	R SVD	R SVD	R SVD
10	R SVD	R SVD	R SVD
11	R SVD	R SVD	R SVD
12	R SVD	R SVD	R SVD
13	R SVD	R SVD	R SVD
14	R SVD	R SVD	R SVD
15	R SVD	R SVD	R SVD
16	R SVD	R SVD	R SVD
17	R SVD	R SVD	R SVD

CFG6	CFG5	PCIE CONFIG
1	1	1x16 , Default
1	0	2X8
0	1	RSVD
0	0	X8,X4,X4

CFG 0-17 all internal PULL-UP

LGA1150 (D)

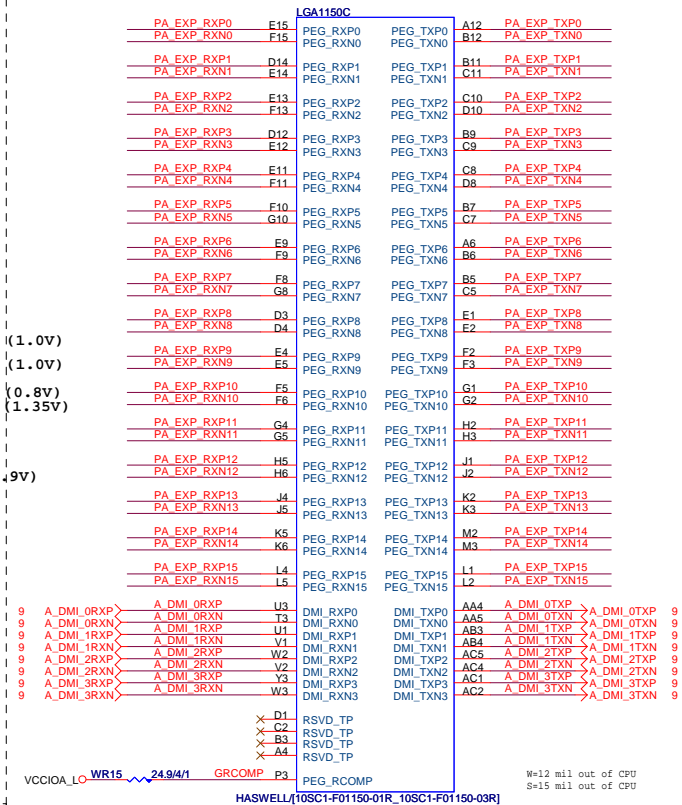


FDI:4/4/4//15(breakout min 4/4/4//8)
Impedance=85 +- 15%

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

Impedance=85 +- 15%

LGA1155 (C)

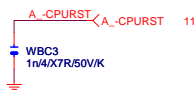


CPU PEG 5/5/5//20 Impedance=80 +- 15%

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

-CPURST

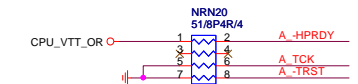
1.1V分壓



CPU SVID



CPU PU/PD

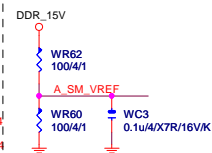


A_THRMTRIP WR70 1K/4/1 VCC1_05 PCH

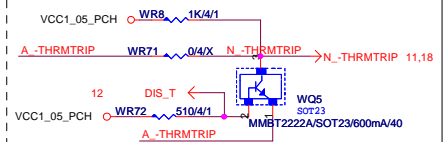
A_PWR_DEBUG WR34 150/4/1 VCC1_05_PCH



SM REF



THRMTRIP DISABLE FOR Z87 OVERCLOCK

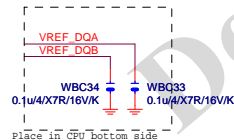


Gigabyte Technology

Title			
CPU LGA1150-A			
Size	Document Number		Rev
Custom	GA-H97-HD3		1.1
Date:	Wednesday, October 08, 2014	Sheet	4 of 34

LGA1150A						
	MAAA0	AU13	DDR0_MA0	DDR0_DQ0	AD38	MDA0
	MAAA1	AV16	DDR0_MA1	DDR0_DQ1	AD39	MDA1
	MAAA2	AV16	DDR0_MA2	DDR0_DQ2	AF38	MDA2
	MAAA3	AU17	DDR0_MA3	DDR0_DQ3	AF39	MDA3
	MAAA4	AW18	DDR0_MA4	DDR0_DQ4	AD37	MDA4
	MAAA5	AW18	DDR0_MA5	DDR0_DQ5	AD40	MDA5
	MAAA6	AV17	DDR0_MA6	DDR0_DQ6	AF37	MDA6
	MAAA7	AT18	DDR0_MA7	DDR0_DQ7	AF40	MDA7
	MAAA8	AU18	DDR0_MA8	DDR0_DQ8	AD39	MDA8
	MAAA9	AT19	DDR0_MA9	DDR0_DQ9	AH38	MDA10
	MAAA10	AW11	DDR0_MA10	DDR0_DQ10	AH39	MDA10
	MAAA11	AV19	DDR0_MA11	DDR0_DQ11	AH38	MDA11
	MAAA12	AU19	DDR0_MA12	DDR0_DQ12	AH39	MDA12
	MAAA13	AT10	DDR0_MA13	DDR0_DQ13	AF38	MDA8
	MAAA14	AT20	DDR0_MA14	DDR0_DQ14	AK37	MDA14
	MAAA15	AU21	DDR0_MA15	DDR0_DQ15	AK40	MDA15
				DDR0_DQ16	MDA17	
	MODT_A0	AW10	DDR0_ODT0	DDR0_DQ17	AF39	MDA21
	MODT_A1	AY18	DDR0_ODT1	DDR0_DQ18	AP38	MDA18
	MODT_A2	AW9	DDR0_ODT2	DDR0_DQ19	AP39	MDA19
	MODT_A3	AU8	DDR0_ODT3	DDR0_DQ20	AP38	MDA16
				DDR0_DQ21	AP37	MDA22
		AW33	DDR0_ECC0	DDR0_DQ22	AF40	MDA23
		AV33	DDR0_ECC1	DDR0_DQ23	AP37	MDA25
		AU31	DDR0_ECC2	DDR0_DQ24	AP37	MDA29
		AV31	DDR0_ECC2	DDR0_DQ25	AV37	MDA26
		AV31	DDR0_ECC2	DDR0_DQ26	AV37	MDA26
		AT33	DDR0_ECC4	DDR0_DQ27	AV35	MDA27
		AU33	DDR0_ECC5	DDR0_DQ28	MDA28	
		AT31	DDR0_ECC5	DDR0_DQ28	AU37	MDA24
		AW31	DDR0_ECC6	DDR0_DQ29	AT35	MDA30
			DDR0_ECC7	DDR0_DQ30	AW35	MDA31
	SBAA0	AV12	DDR0_BA0	DDR0_DQ31	AY6	MDA37
	SBAA1	AY11	DDR0_BA1	DDR0_DQ32	AU6	MDA37
	SBAA2	AT21	DDR0_BA2	DDR0_DQ33	AU6	MDA37
				DDR0_DQ35	AU4	MDA35
	CKEA0	CKEA0	DDR0_CKE0	DDR0_DQ36	AW6	MDA36
	CKEA1	CKEA1	DDR0_CKE1	DDR0_DQ37	AW6	MDA32
	CKEA2	AU22	DDR0_CKE2	DDR0_DQ38	AW4	MDA38
	CKEA3	CKEA3	DDR0_CKE3	DDR0_DQ39	AT4	MDA33
				DDR0_DQ40	AR4	MDA45
	-CSA0	-CSA0	DDR0_CS_N0	DDR0_DQ41	AN4	MDA42
	-CSA1	AV9	DDR0_CS_N1	DDR0_DQ42	AN4	MDA43
	-CSA2	-CSA2	DDR0_CS_N2	DDR0_DQ43	AN4	MDA44
	-CSA3	-CSA3	DDR0_CS_N3	DDR0_DQ44	AN4	MDA44
				DDR0_DQ45	AN2	MDA46
	DCLKA0	DCLKA0	DDR0_CLK_P0	DDR0_DQ46	AN1	MDA47
	-DCLKA0	-DCLKA0	DDR0_CLK_N0	DDR0_DQ47	AL1	MDA49
	DCLKA1	DCLKA1	DDR0_CLK_P1	DDR0_DQ48	AL1	MDA49
	-DCLKA1	-DCLKA1	DDR0_CLK_N1	DDR0_DQ49	AL3	MDA50
	DCLKA2	DCLKA2	DDR0_CLK_P2	DDR0_DQ50	AL4	MDA51
	-DCLKA2	-DCLKA2	DDR0_CLK_N2	DDR0_DQ51	AL2	MDA52
	DCLKA3	DCLKA3	DDR0_CLK_P3	DDR0_DQ52	AL3	MDA53
	-DCLKA3	-DCLKA3	DDR0_CLK_N3	DDR0_DQ53	AL2	MDA54
		AW12	RSVD	AJ1	MDA55	
				AG1	MDA57	
				AG3	MDA61	
				DDR0_DQ55	AG3	MDA58
				DDR0_DQ56	AG4	MDA59
				DDR0_DQ57	AG2	MDA60
				DDR0_DQ58	AG3	MDA56
				DDR0_DQ59	AG3	MDA62
				DDR0_DQ60	AG3	MDA62
				DDR0_DQ61	AE1	MDA63
	-SRASA	-SRASA	DDR0_RAS*	DDR0_DQ62	AE1	MDA63
				DDR0_DQ63	AE3	MDA63
	-SWEA	-SWEA	DDR0_WE*	DDR0_DQ64	AE3	MDA63
				DDR0_DQ65	AE3	MDA63
		AV20	RSVD	DDR0_DQ66	AE3	MDA63
		AW27	RSVD	DDR0_DQ67	AE3	MDA63
				DDR0_DQ68	AE3	MDA63
	-SCASA	-SCASA	DDR0_CAS*	DDR0_DQ69	AE3	MDA63
		AU9C		DDR0_DQ70	AE3	MDA63
				DDR0_DQ71	AE3	MDA63
		WR61	DDR_RESET*	DDR0_DQ72	AE3	MDA63
		D4/SHT/MX		DDR0_DQ73	AE3	MDA63
		W1C4		DDR0_DQ74	AE3	MDA63
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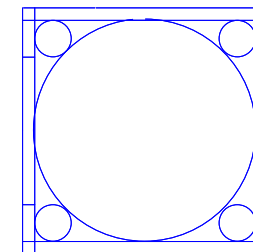
HASWELL/[10SC1-F01150-01R_10SC1-F01150-03R]



Place in CPU bottom side

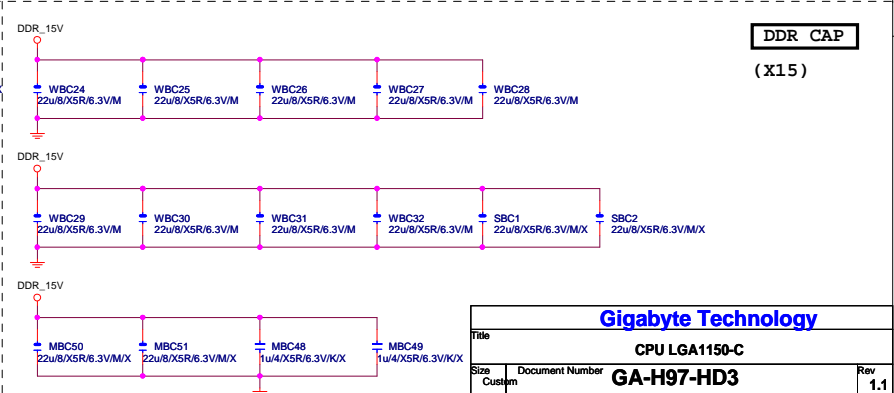
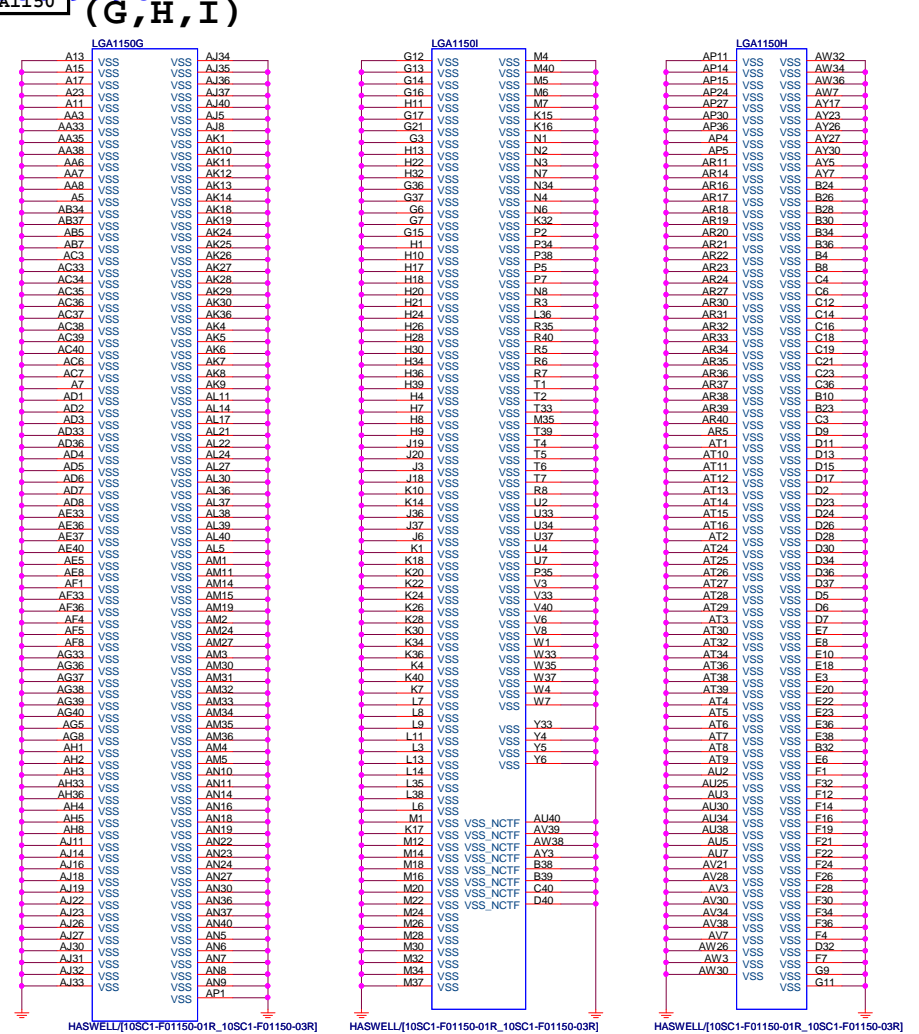
LGA1150B			
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MAAB1	AK23	DDR1_M A01	DDR1_D01
MAAB2	AM22	DDR1_M A02	DDR1_D02
MAAB3	AM23	DDR1_M A03	DDR1_D03
MAAB4	AF23	DDR1_M A04	DDR1_D04
MAAB5	AL23	DDR1_M A05	DDR1_D05
MAAB6	AY24	DDR1_M A06	DDR1_D06
MAAB7	AV25	DDR1_M A07	DDR1_D07
MAAB8	AL26	DDR1_M A08	DDR1_D08
MAAB9	AW25	DDR1_M A09	DDR1_D09
MAAB10	AF18	DDR1_M A10	DDR1_D10
MAAB11	AY15	DDR1_M A11	DDR1_D11
MAAB12	AV26	DDR1_M A12	DDR1_D12
MAAB13	AL25	DDR1_M A13	DDR1_D13
MAAB14	AY27	DDR1_M A14	DDR1_D14
MAAB15	AV28	DDR1_M A15	DDR1_D15
MODT_B0	AM17	DDR1_D0T0	DDR1_D16
MODT_B1	AL16	DDR1_D0T1	DDR1_D17
MODT_B2	AM16	DDR1_D0T2	DDR1_D18
MODT_B3	AK15	DDR1_D0T3	DDR1_D19
			DDR1_D20
	AM26	DDR1_EC00	DDR1_D21
	AM25	DDR1_EC01	DDR1_D22
	AP25	DDR1_EC02	DDR1_D23
	AP26	DDR1_EC03	DDR1_D24
	AL26	DDR1_EC04	DDR1_D25
	AL25	DDR1_EC05	DDR1_D26
	AV26	DDR1_EC06	DDR1_D27
	AV25	DDR1_EC07	DDR1_D28
		DDR1_EC08	DDR1_D29
SBAB0	AK17	DDR1_BA0	DDR1_D30
SBAB1	AL18	DDR1_BA1	DDR1_D31
SBAB2	AW28	DDR1_BA2	DDR1_D32
CKEB0	AW29	DDR1_CKE0	DDR1_D33
CKEB1	AY22	DDR1_CKE1	DDR1_D34
CKEB2	AL28	DDR1_CKE2	DDR1_D35
CKEB3	AL29	DDR1_CKE3	DDR1_D36
CSB0	AP17	DDR1_CS_N0	DDR1_D37
CSB1	AN17	DDR1_CS_N1	DDR1_D38
CSB2	AN15	DDR1_CS_N2	DDR1_D39
CSB3	AL15	DDR1_CS_N3	DDR1_D40
			DDR1_D41
			DDR1_D42
			DDR1_D43
			DDR1_D44
			DDR1_D45
			DDR1_D46
			DDR1_D47
DLCKB0	AM20	DDR1_CLK_P0	DDR1_D48
DLCKB0	AM21	DDR1_CLK_P1	DDR1_D49
DLCKB1	AP21	DDR1_CLK_P2	DDR1_D50
DLCKB2	AN20	DDR1_CLK_P3	DDR1_D51
DLCKB3	AN21	DDR1_CLK_P4	DDR1_D52
DLCKB3	AP19	DDR1_CLK_P5	DDR1_D53
DLCKB3	AP20	DDR1_CLK_P6	DDR1_D54
DLCKB3	AP20	DDR1_CLK_P7	DDR1_D55
SCASB	AP16C	DDR1_CAS*	DDR1_D56
SRASB	AL20	DDR1_RSVD	DDR1_D57
SWEB	AM18C	DDR1_RAS*	DDR1_D58
	AK16C	DDR1_WE*	DDR1_D59
			DDR1_D60
AB39		DDR_VREF_D00	DDR1_D61
AB40		DDR_VREF_D01	DDR1_D62
		DDR1_D0S_P0	DDR1_D63
		DDR1_D0S_P1	DDR1_D64
		DDR1_D0S_P2	DDR1_D65
		DDR1_D0S_P3	DDR1_D66
		DDR1_D0S_P4	DDR1_D67
		DDR1_D0S_P5	DDR1_D68
		DDR1_D0S_P6	DDR1_D69
		DDR1_D0S_P7	DDR1_D70
		DDR1_D0S_P8	DDR1_D71
		DDR1_D0S_N0	DDR1_D72
		DDR1_D0S_N1	DDR1_D73
		DDR1_D0S_N2	DDR1_D74
		DDR1_D0S_N3	DDR1_D75
		DDR1_D0S_N4	DDR1_D76
		DDR1_D0S_N5	DDR1_D77
		DDR1_D0S_N6	DDR1_D78
		DDR1_D0S_N7	DDR1_D79
		DDR1_D0S_N8	DDR1_D80
			DDR1_D81
			DDR1_D82
			DDR1_D83
			DDR1_D84
			DDR1_D85
			DDR1_D86
			DDR1_D87
			DDR1_D88
			DDR1_D89
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			DDR1_D93
			DDR1_D94
			DDR1_D95

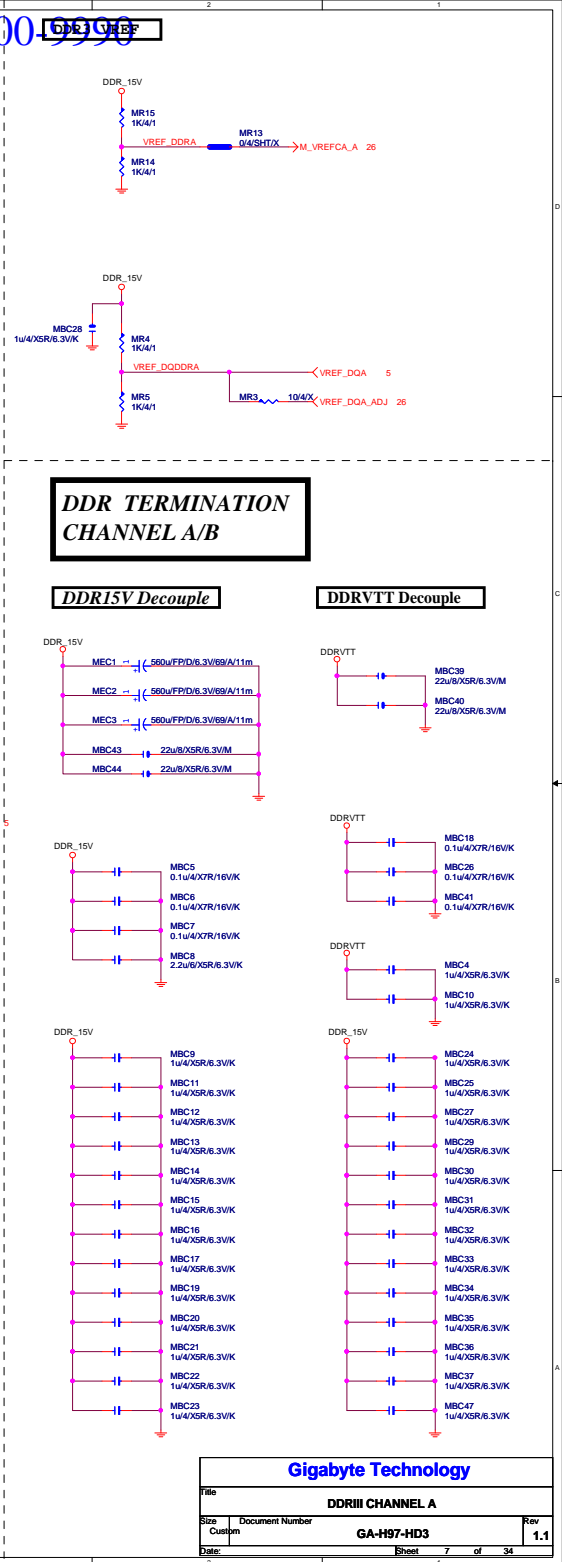
HASWELL/10SC1-F01150-01R_10SC1-F01150-03R



DDR BUS

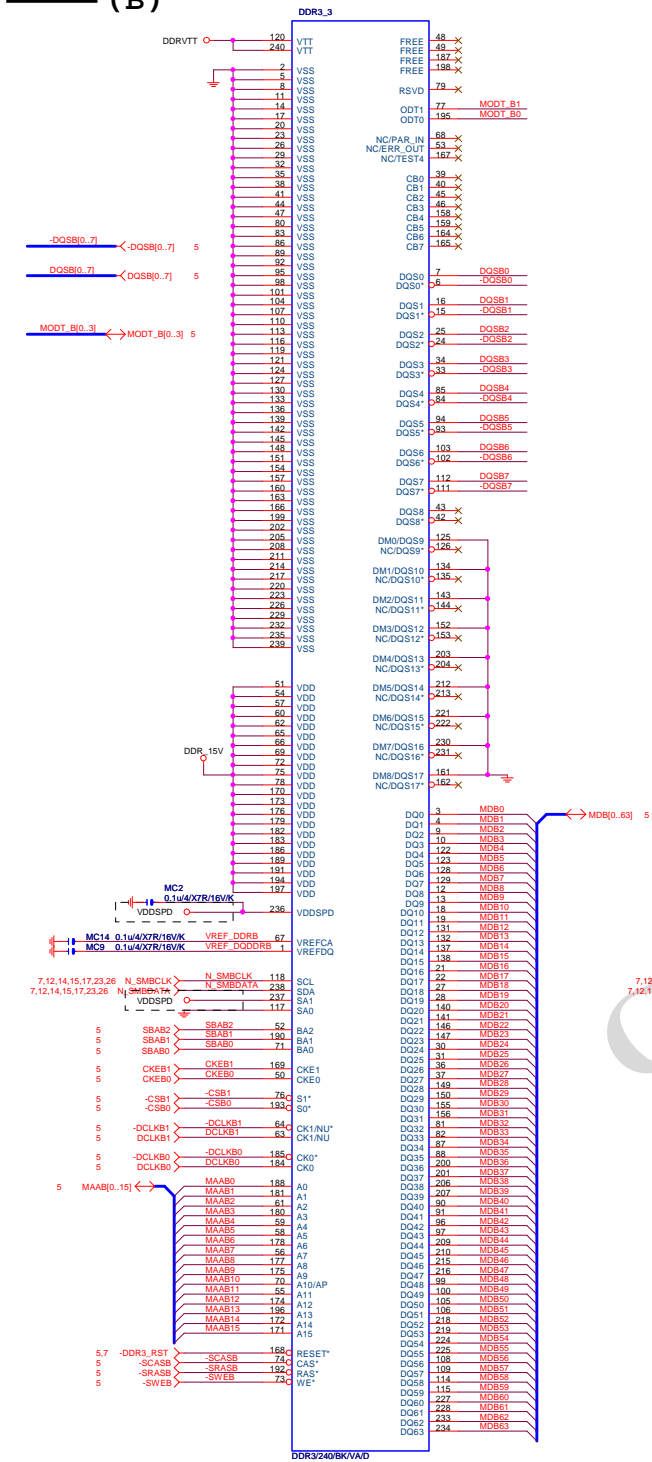
7	MODT_A[0..3]	↔	MODT_A[0..3]
8	MODT_B[0..3]	↔	MODT_B[0..3]
7	MDA[0..63]	↔	MDA[0..63]
8	MDB[0..63]	↔	MDB[0..63]
7	DQSA[0..7]	↔	DQSA[0..7]
7	-DQSA[0..7]	↔	-DQSA[0..7]
7	MAAA[0..15]	↔	MAAA[0..15]
8	MAAB[0..15]	↔	MAAB[0..15]
8	DQSB[0..7]	↔	DQSB[0..7]
8	-DQSB[0..7]	↔	-DQSB[0..7]





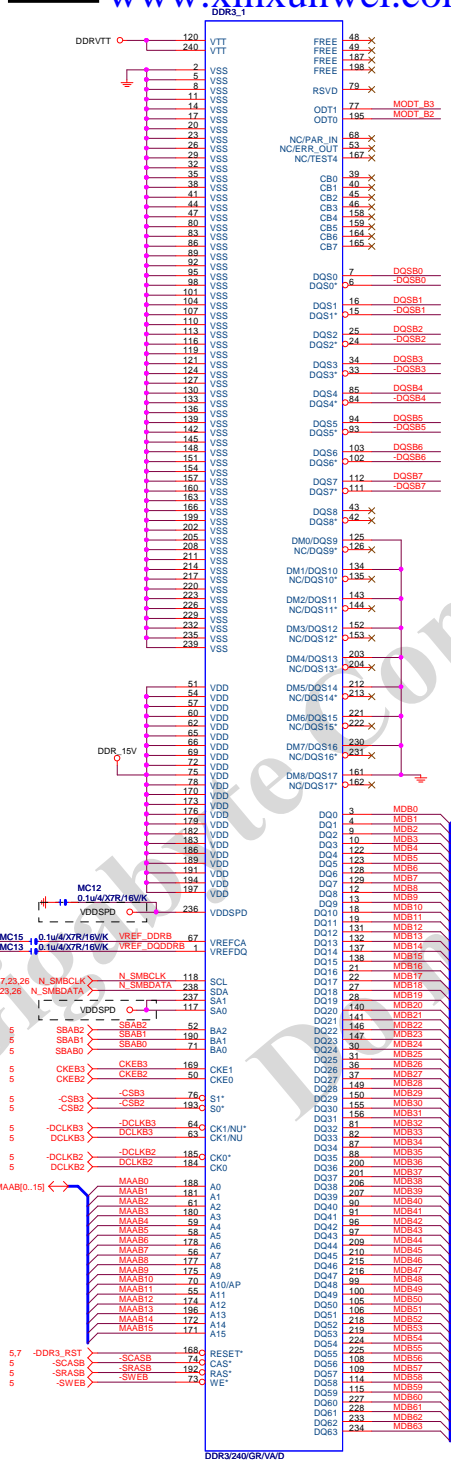
DDR3

(B)



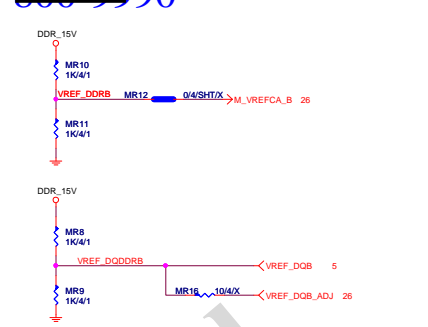
DDR3

www.xinxunwei.com 400-800-9990



DDR3

DDR3 VREF



DDR3 1066,1333,1600MHZ BANDWIDTH

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

DDR3 1333MHZ
DDR3 clock=667MHZ
DDR3 single channel bandwidth=10.6GB/s
DDR3 dual channel bandwidth=21GB/s

DDR3 1600MHZ
DDR3 clock=800MHZ
DDR3 single channel bandwidth=12.8GB/s
DDR3 dual channel bandwidth=25.6GB/s

COUPON



CPU

DIMM4
DIMM2
DIMM3
DIMM1

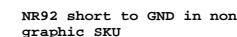
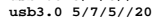
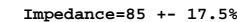
CHA

CHB

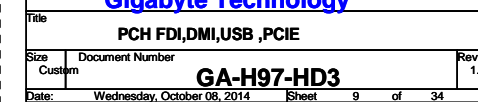
Gigabyte Technology

DDR3 CHANNEL B		
File	Document Number	Rev
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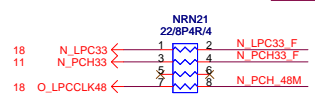
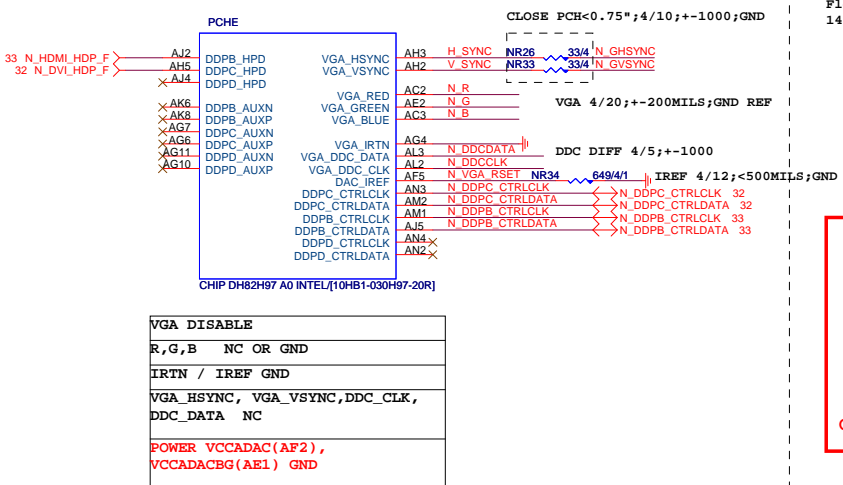
PCHB Impedance=85 +- 15%



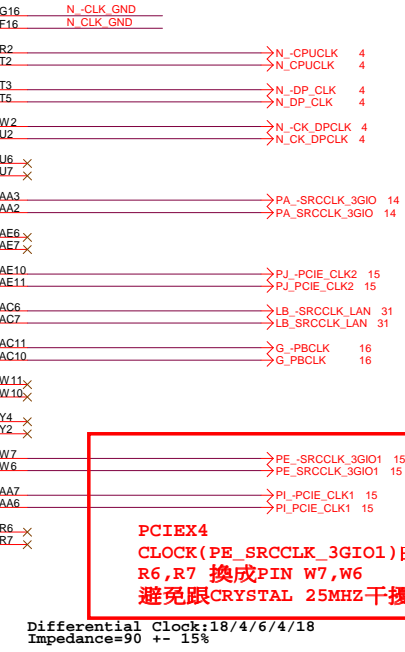
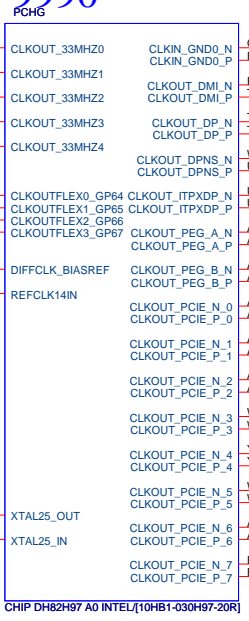
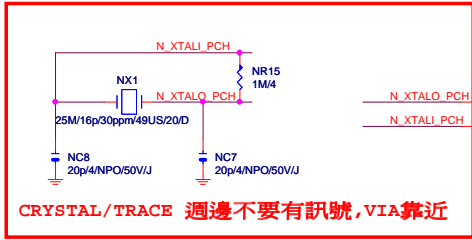
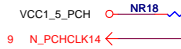
USB TABLE



PCH (E)

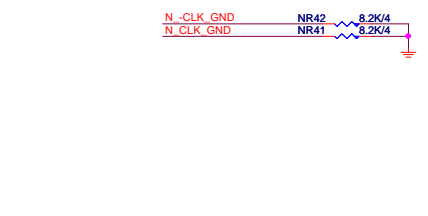


Flex1,2,3,4 :
14/24/33/48MHZ

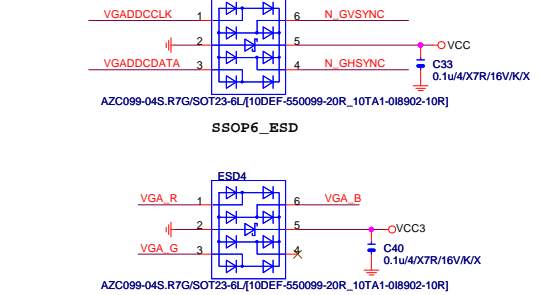


PCIEX4
CLOCK(PE_SRRCLK_3GIO1)由PIN
R6,R7 換成PIN W7,W6
避免跟CRYSTAL 25MHZ干擾

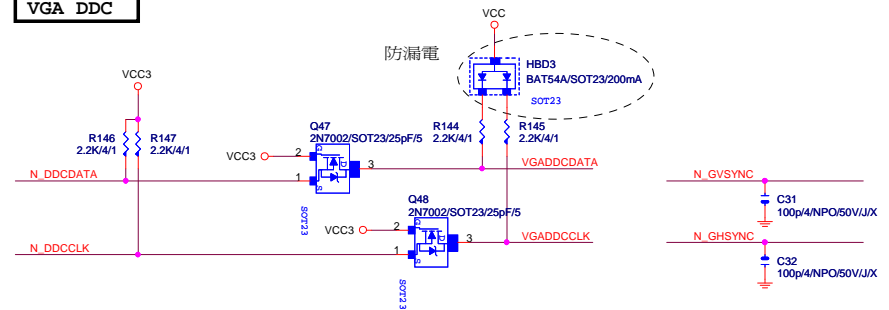
PCH CLK PD



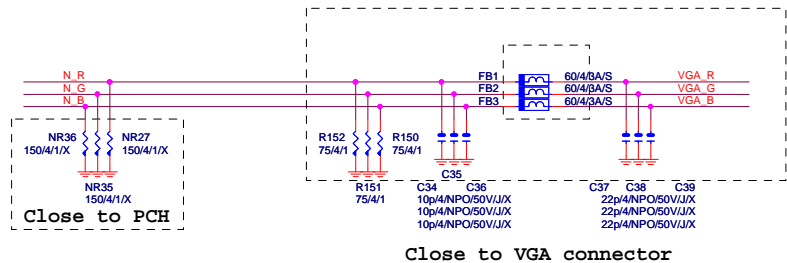
VGA ESD



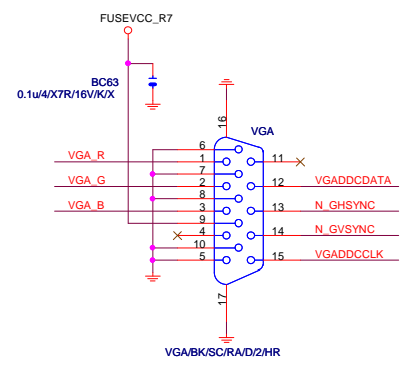
VGA DDC



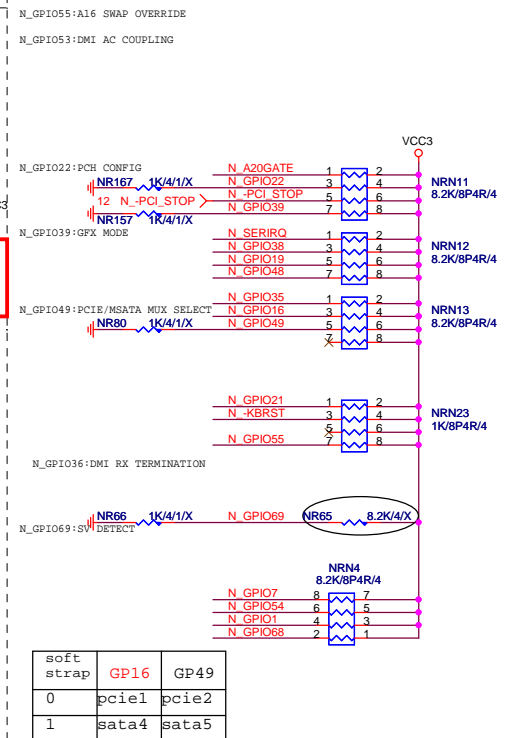
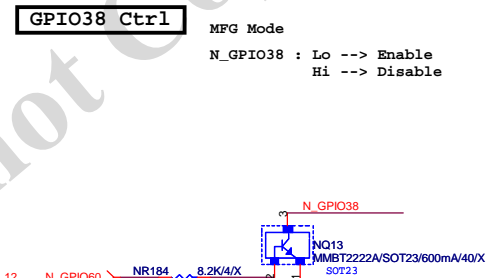
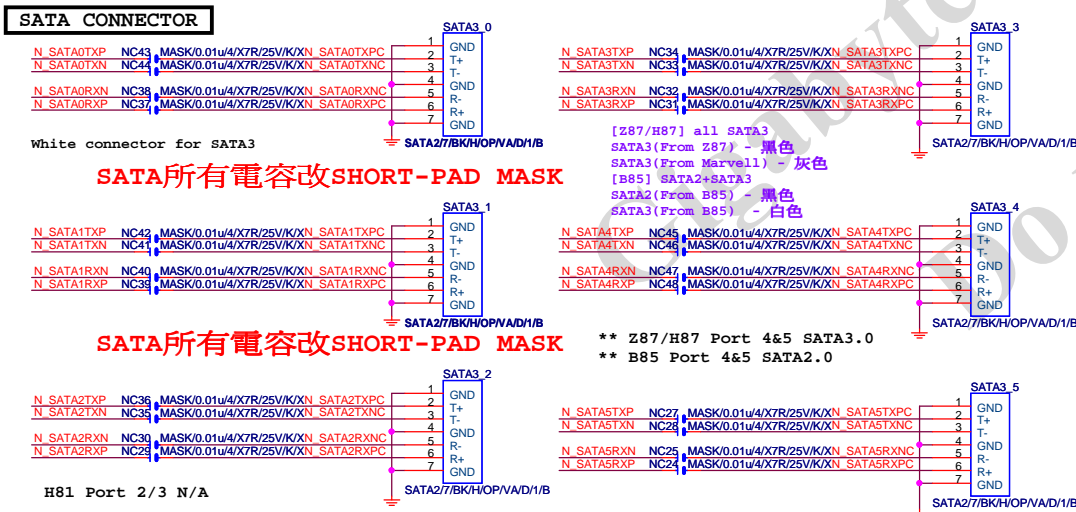
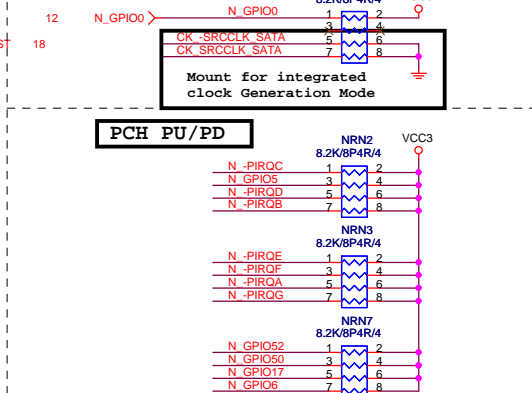
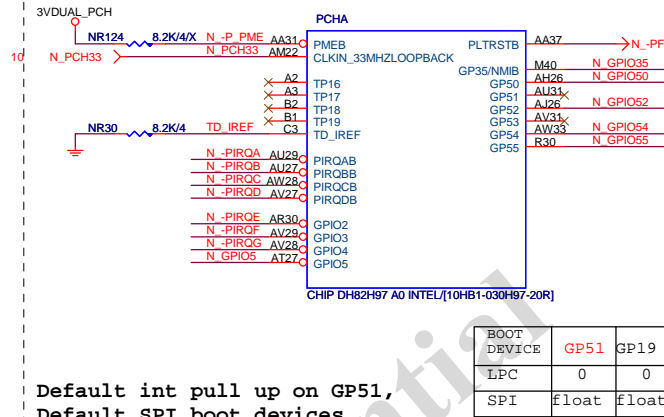
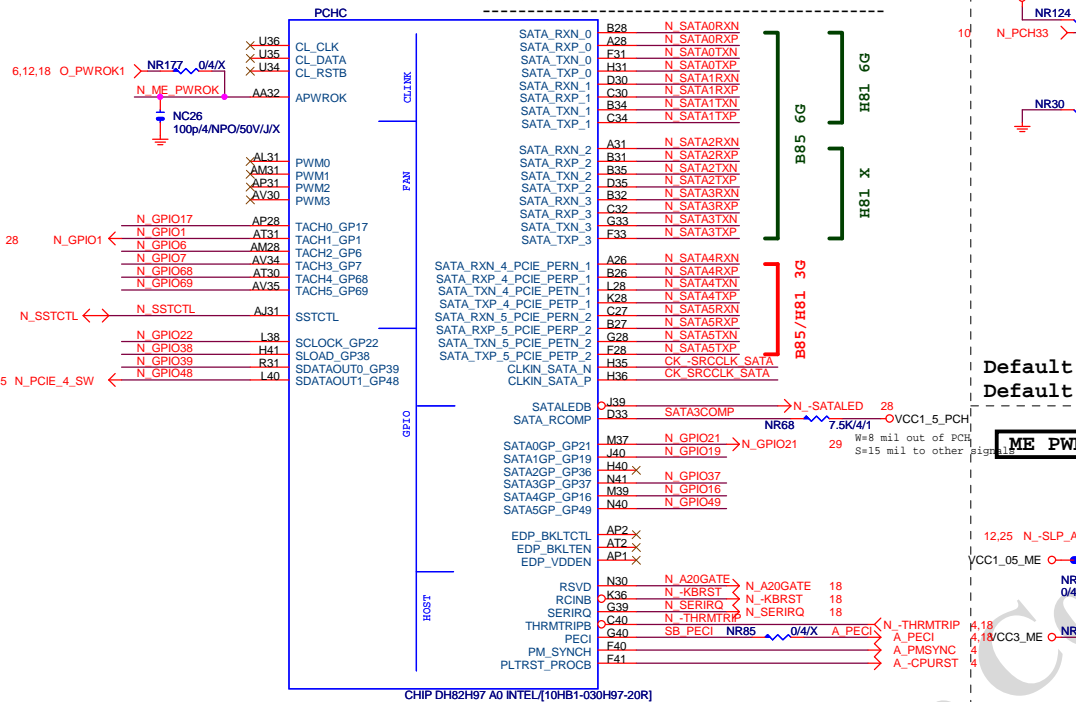
VGA DDC

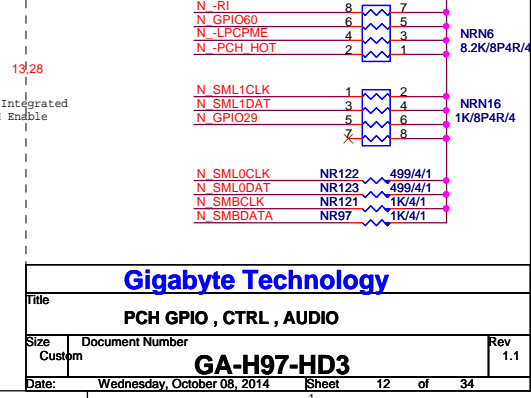
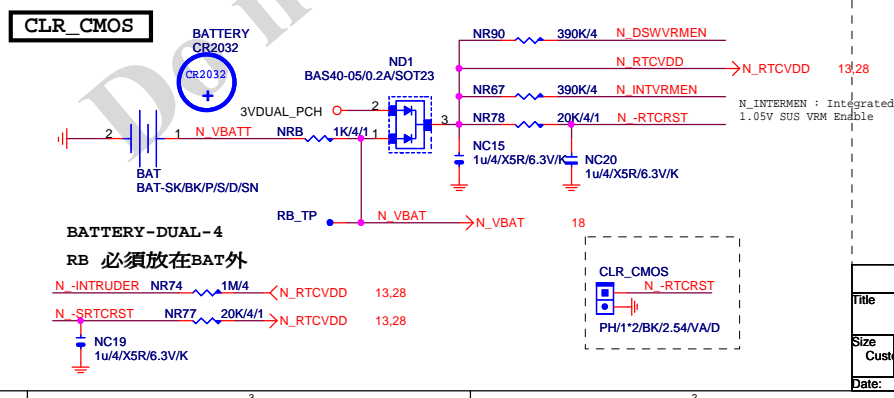
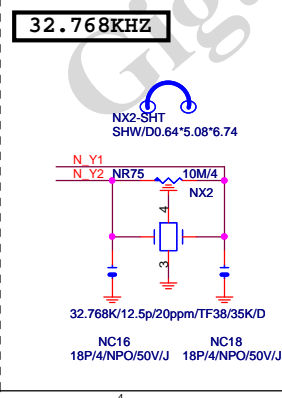
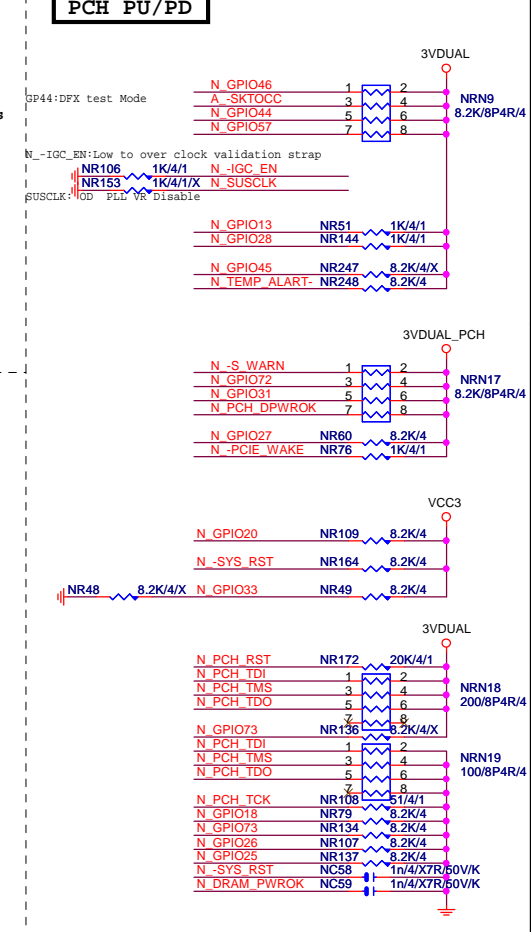
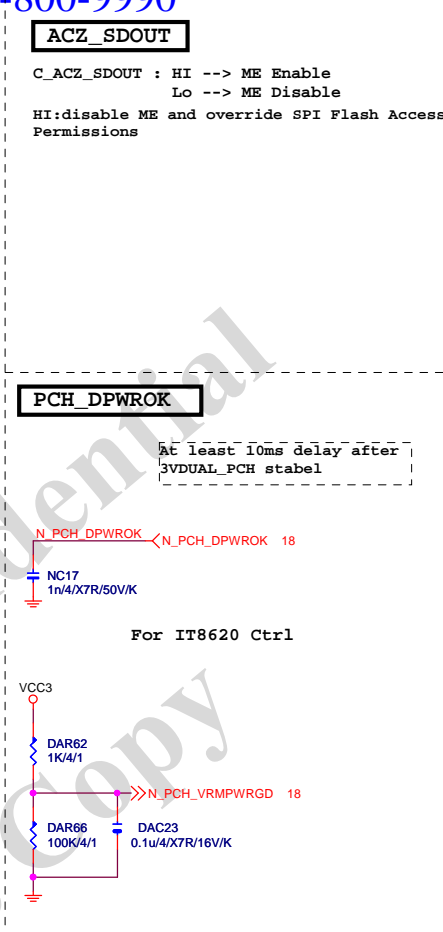


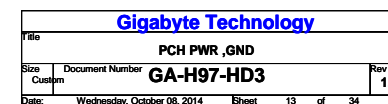
VGA CONNECTOR



Gigabyte Technology			
Title PCH DISPLAY ,CLK BUFFER			
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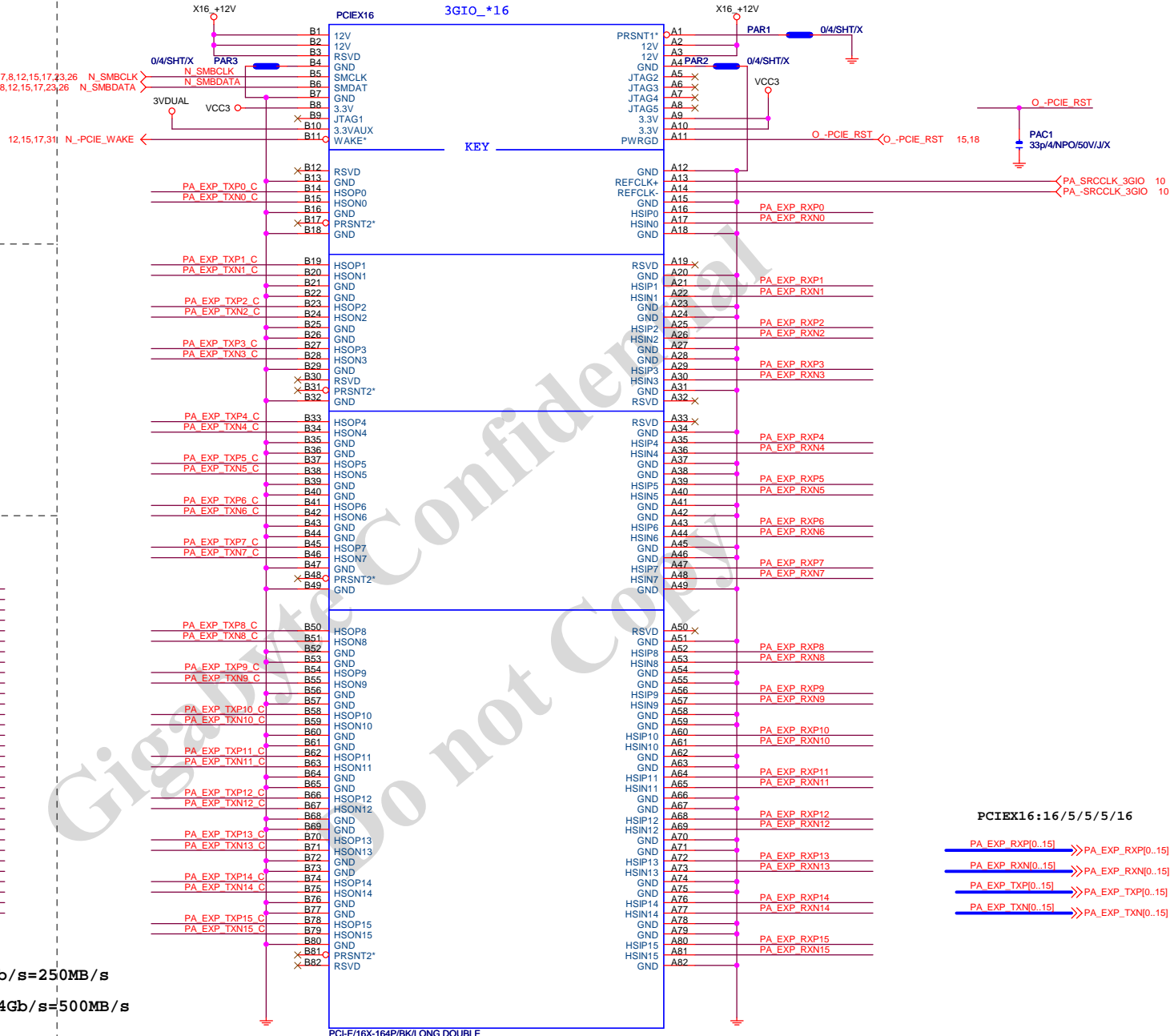
PCIEX16 SLOT

PCIESLOT-164DN-C



PA EXP TXP0	PAC5	0.22u4/X5R6/3VK	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u4/X5R6/3VK	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u4/X5R6/3VK	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u4/X5R6/3VK	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u4/X5R6/3VK	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u4/X5R6/3VK	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u4/X5R6/3VK	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u4/X5R6/3VK	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u4/X5R6/3VK	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u4/X5R6/3VK	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u4/X5R6/3VK	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u4/X5R6/3VK	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u4/X5R6/3VK	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u4/X5R6/3VK	PA EXP TXN6 C
PA EXP TXP7	PAC18	0.22u4/X5R6/3VK	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u4/X5R6/3VK	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u4/X5R6/3VK	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u4/X5R6/3VK	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u4/X5R6/3VK	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u4/X5R6/3VK	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u4/X5R6/3VK	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u4/X5R6/3VK	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u4/X5R6/3VK	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u4/X5R6/3VK	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u4/X5R6/3VK	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u4/X5R6/3VK	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u4/X5R6/3VK	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u4/X5R6/3VK	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u4/X5R6/3VK	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u4/X5R6/3VK	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u4/X5R6/3VK	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u4/X5R6/3VK	PA EXP TXN15 C

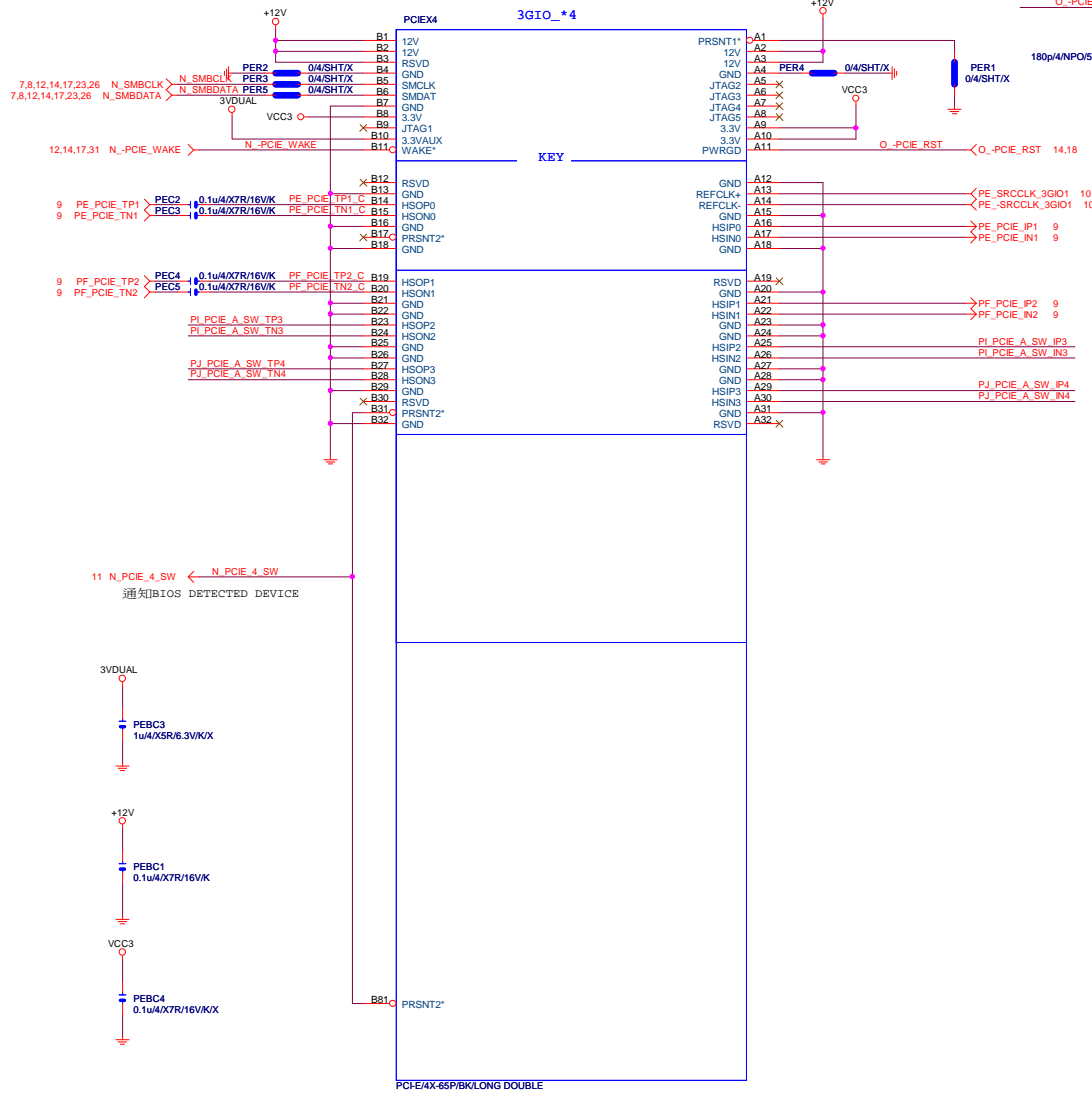
PCI-E REV:2.0--> 5GHZ



PCIEX16:16/5/5/5/16

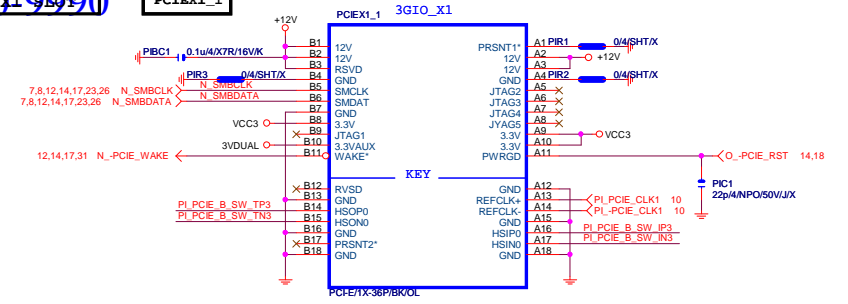
PA_EXP_RXP[0..15]	»»	PA_EXP_RXP[0..15]	4
PA_EXP_RXN[0..15]	»»	PA_EXP_RXN[0..15]	4
PA_EXP_TXP[0..15]	»»	PA_EXP_TXP[0..15]	4
PA_EXP_TXN[0..15]	»»	PA_EXP_TXN[0..15]	4

PCIEX4 SLOT

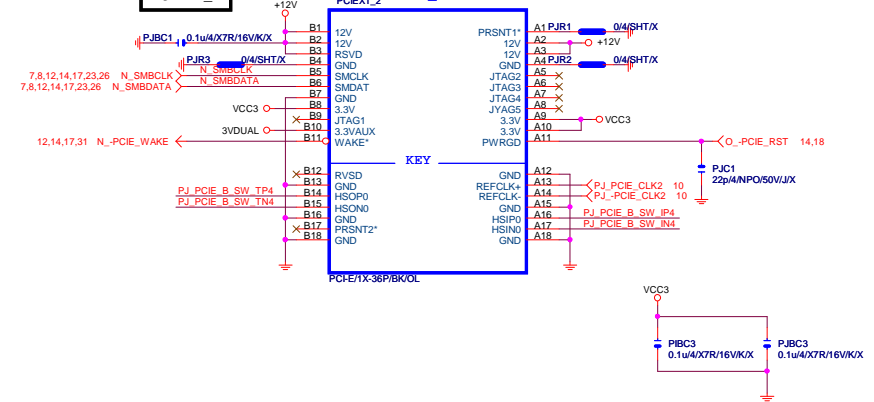


	N_PCI_E_SW (PCH GPIO48)	PCIEX4_X1 (SIO_GPIO26)
PCIEX4 No devices	H	H
PCIEX4 -> X1	H	H
PCIEX4 Have devices		
PCIEX4 -> X4	L	L
PCIEX1_1/2 -> N/A		

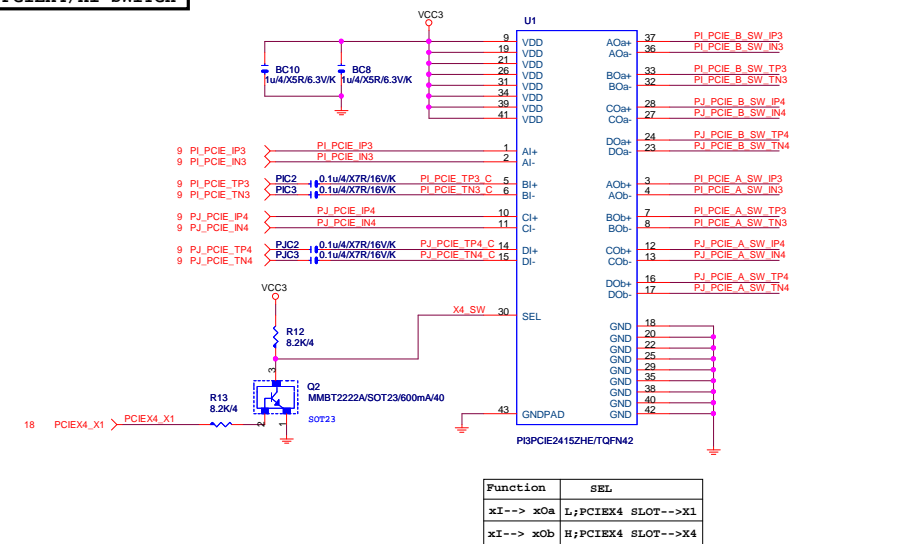
PCIEX1_1



PCIEX1_2

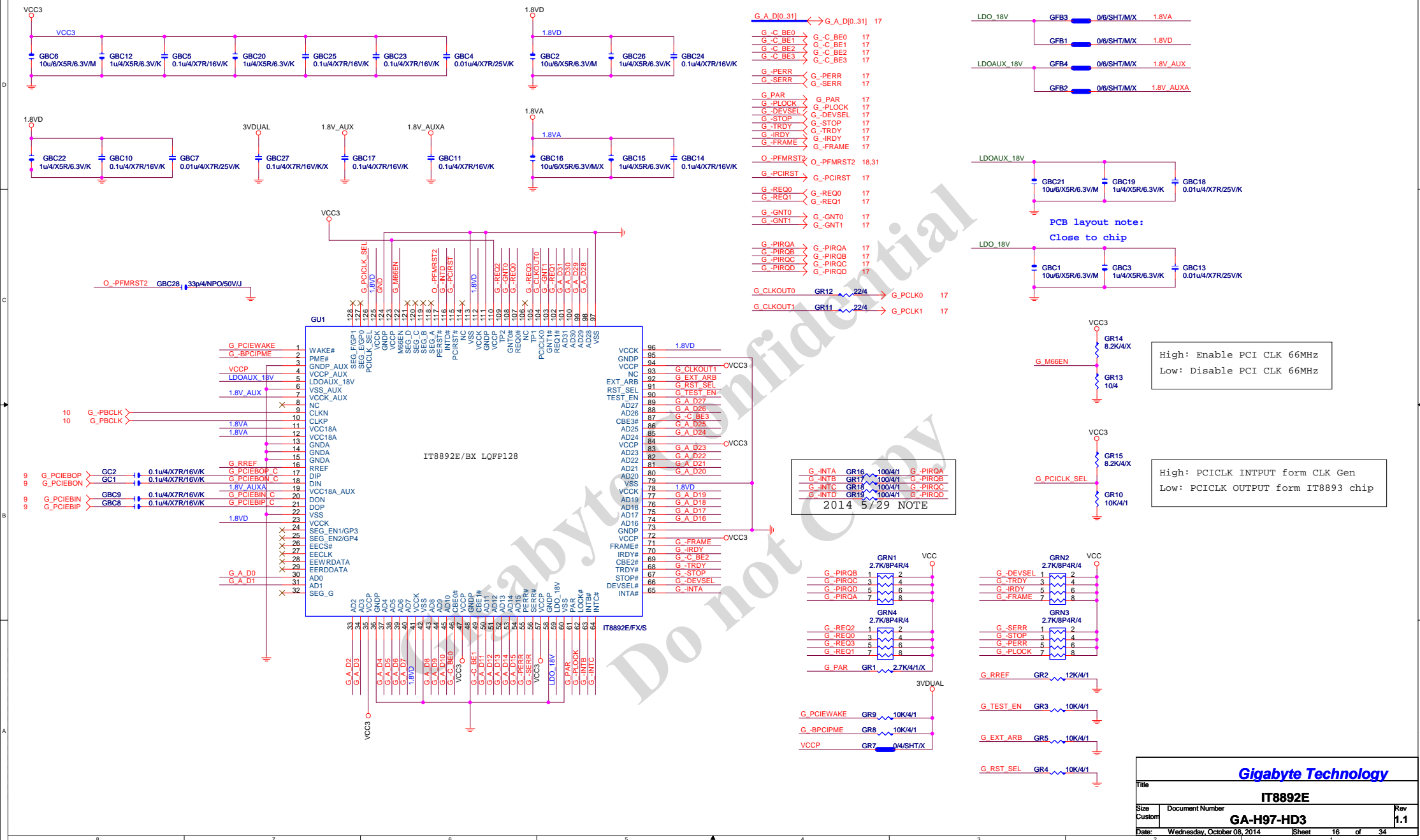


PCIEX4/X1 SWITCH

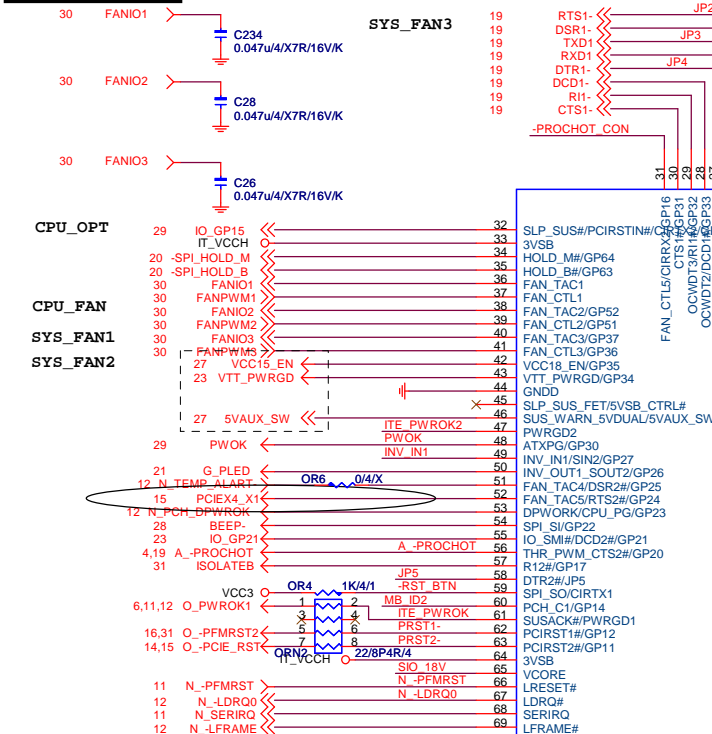


Gigabyte Technology

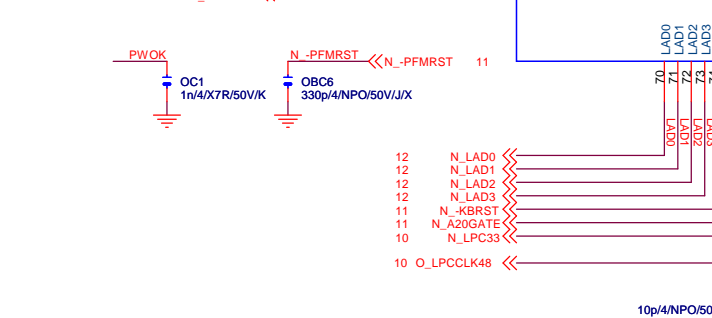
Title	PCI_E X1 1,2,3	
Size	Document Number	Rev
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SIO IT8728F

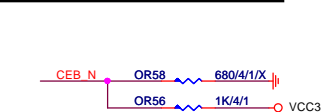


IT8620E_BX

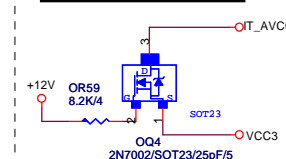


IT8620E GPIO問題隨整	
PIN 50	GP26--- 第一次接上POWER時會拉 LO
PIN 90/91	DEFAULT為HLED FUNCTION, GP93 BYPASS TO GP92
	高溫時 GP92 會被拉Lo(ITE BUG)
PIN 108	GP40--- POWER ON 時會拉 LO
PIN 111/112	MOUSE 跟FAN6 FUNCTION 擇一使用, 不然會互相干擾

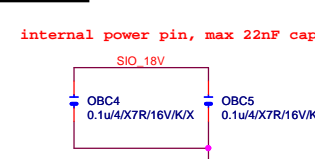
DUAL BIOS OPT STRAP



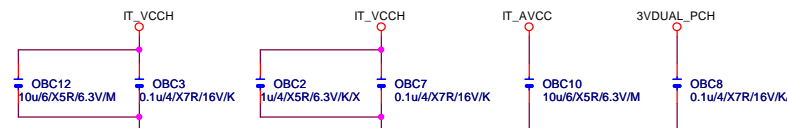
Power leakage



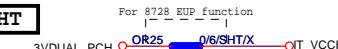
SIO_18V



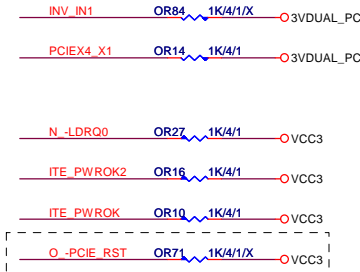
SIO CAP



PWR SHT

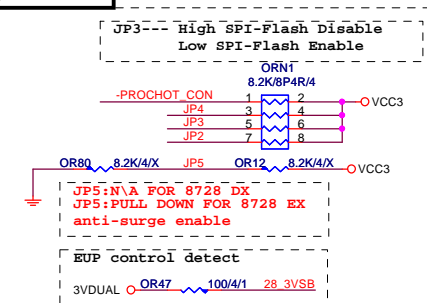


SIO PU



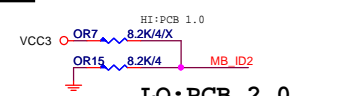
-PCIE_RST is OP in IT8728

SIO STRAP



JP4	1	k8 power sequency function is Disable
	0	k8 power sequency function is Enable
JP3	1 1	The default value of EC Index 63h/6Bh/73h is 80h.
	1 0	The default value of EC Index 63h/6Bh/73h is FFh.
JP5	0 1	The default value of EC Index 63h/6Bh/73h is 00h.
	0 0	The default value of EC Index 63h/6Bh/73h is 40h.

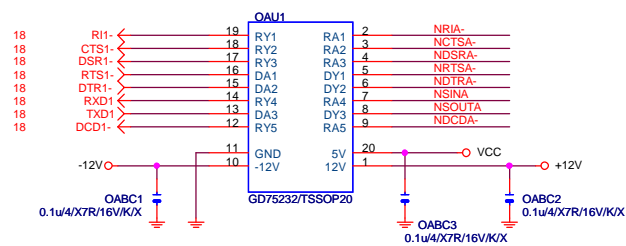
MB ID



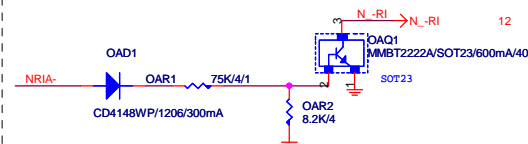
Gigabyte Technology

Title		ITE 8620 LPC IO	
Size B	Document Number	GA-H97-HD3	
Date:	Wednesday, October 08, 2014	Sheet	18 of 34

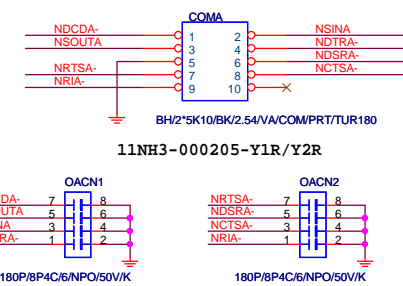
COMA



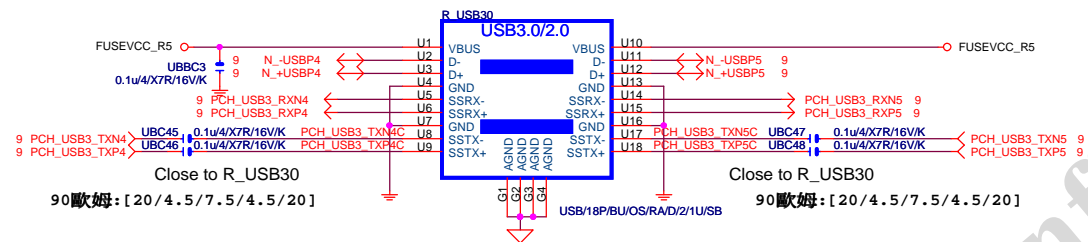
COM RI



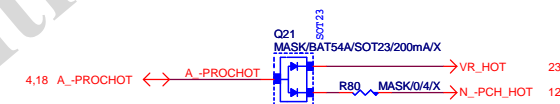
COM BUFFER



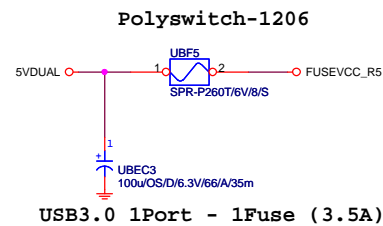
USB30_20 CONNECT



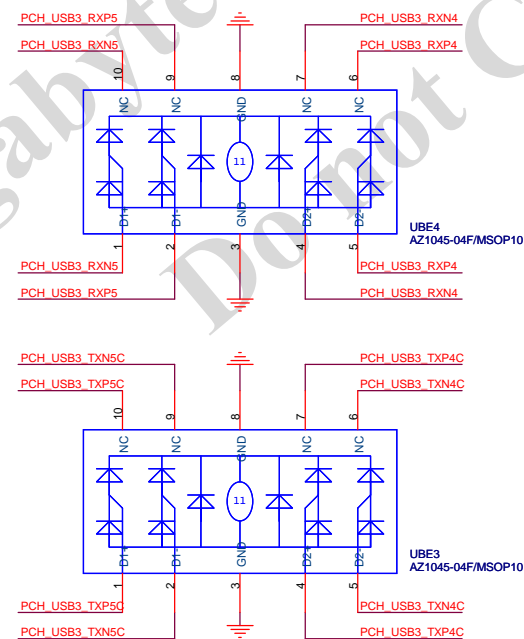
-PROHOT



USB30 PWR

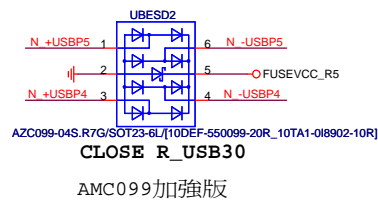


USB30 ESD PROTECT



Thunderbolt pin header

USB20 ESD PROTECT



Gigabyte Technology

Title		COM/ PROHOT/ R_USB	
Size	Document Number	GA-H97-HD3	
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12 N_ICH_SPI_MOSI < N_ICH_SPI_MOSI NR10 8.2K/4/X
12 N_ICH_SPI_CS < N_ICH_SPI_CS NR9 8.2K/4/X
12 N_ICH_SPI_CS1 < N_ICH_SPI_CS1 NR246 8.2K/4/X
18 -SPL_HOLD_M < -SPL_HOLD_M NR3 1K/4/1
18 -SPL_HOLD_B < -SPL_HOLD_B NR11 1K/4/1

N_ICH_SPI_WP1 < N_ICH_SPI_WP1 NR2 8.2K/4/X
N_ICH_SPI_WP0 < N_ICH_SPI_WP0 NR1 8.2K/4/X
N_ICH_SPI_MISO < N_ICH_SPI_MISO NR5 8.2K/4
-HOLD0 < -HOLD0 NR235 1K/4/1/X
-HOLD1 < -HOLD1 NR236 1K/4/1/X

12 N_ICH_SPI_MISO < N_ICH_SPI_MISO NR6 22/4 SPI_MISO

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

1 means floating
0 means PD 1K

NBC4
0.1u/4/X7R/16V/K

指定用DII

18 AFD- < AFD- 1 2 LPT14
18 STB- < STB- 3 4 LPT11
18 PD0- < PD0- 5 6 LPT12
18 INIT- < INIT- 7 8 LPT16

68/8P4R/4

18 ERR- < ERR-
18 ACK- < ACK-
18 BUSY- < BUSY-
18 PE- < PE-
18 SLCT- < SLCT-
18 PD[0..7] < PD[0..7]

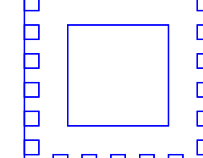
CD4148WP/1206/300mA
PBC2 0.1u/4/X7R/16V/K
PBC1 1u/6/X7R/16V/K/X

PRN2 2.2K/8P4R/4
PRN6 2.2K/8P4R/4
PRN4 2.2K/8P4R/4
PRN7 2.2K/8P4R/4
PR1 2.2K/4/1

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

LPT1 1 2 LPT14
LPT2 3 4 ERR-
LPT3 5 6 LPT16
LPT4 7 8 LPT17
LPT5 9 10
LPT6 11 12
LPT7 13 14
LPT8 15 16
LPT9 17 18
ACK- 19 20
BUSY 21 22
PE 23 24
SLCT 25 26

BH2*13K24/BK/2.54/VA

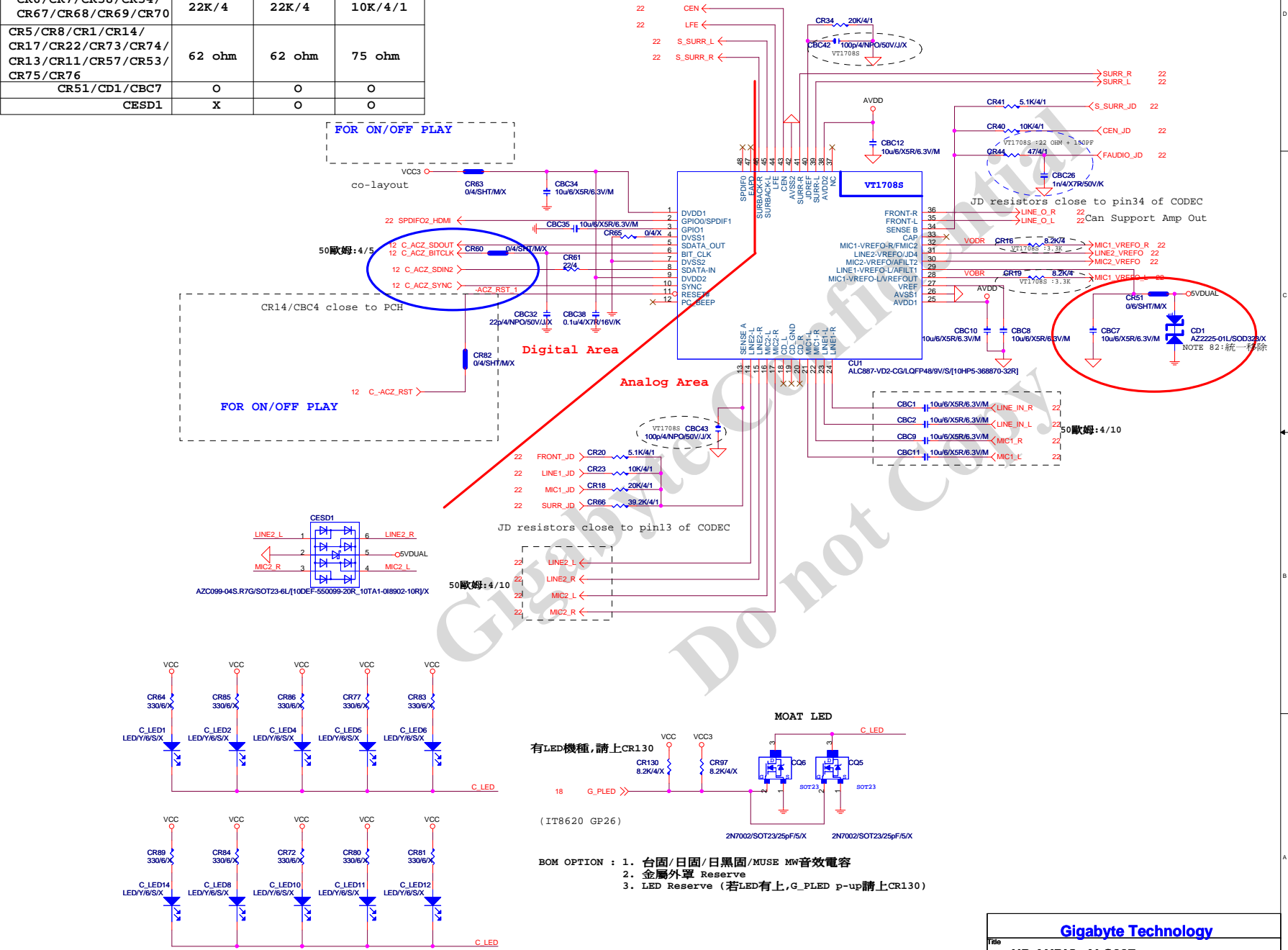


LCP/G-FL/1.27mm/200MIL/WHITE[10SL2-000008-31R]/X

Gigabyte Technology

BIOS			
Title	BIOS		
Size	Document Number	GA-H97-HD3	
Custom			Rev 1.1
Date:	Wednesday, October 08, 2014	Sheet	20 of 34

	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	O	O	O
CESD1	X	O	O



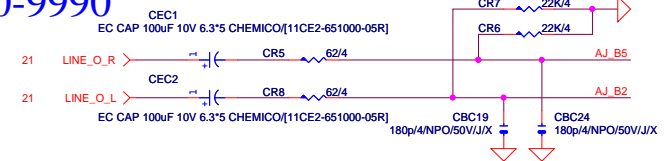
CR49 0/6/SHT/M/X → Close F_AUDIO

CR50 0/6/SHT/M/X
MOATC1 0.1u/4/X7R/16V/K/X → Close Codec

CR21 2.2/6 → Audio jack <--> USB_LAN

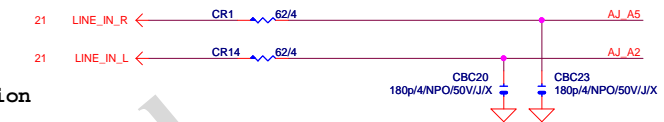
CR24 0/6/X → Under Audio jack

LINE-OUT



Only reserved for ALC888

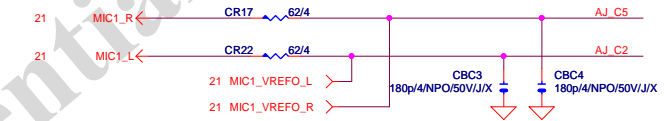
LINE-IN



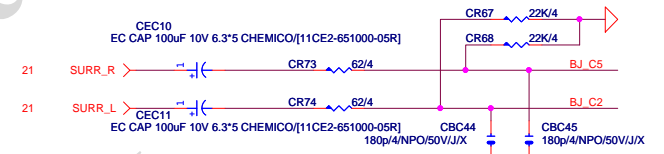
Verify MIC function
in LINE-in

For 889A/888

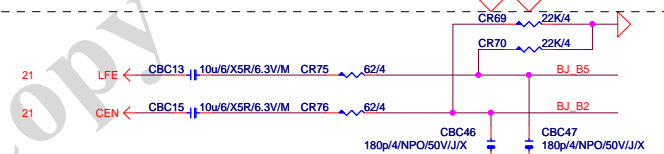
MIC-IN



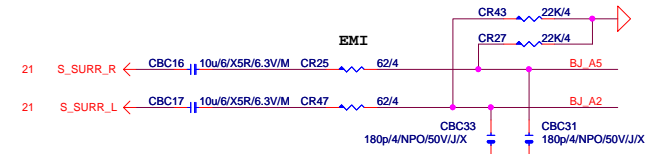
SURROUND



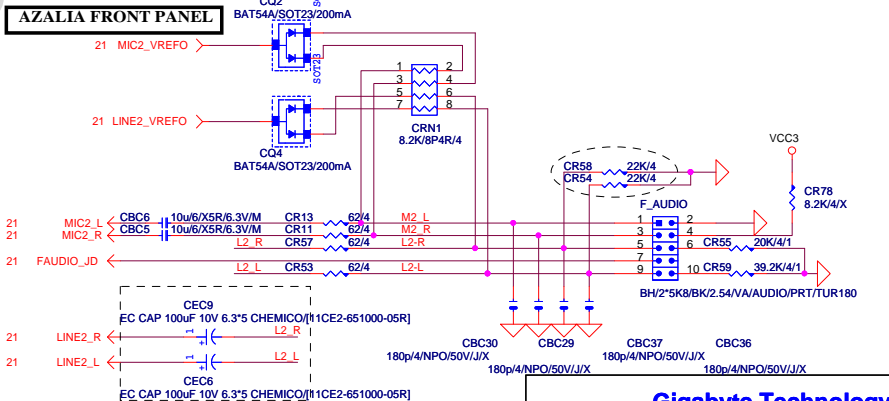
CEN/LFE



SURR BACK



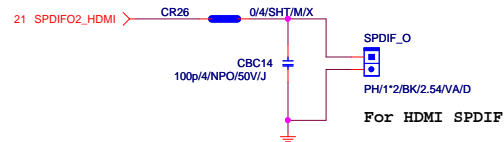
AZALIA FRONT PANEL



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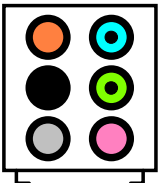
Title	AUDIO JACK		
Size	Document Number	GA-H97-HD3	Rev 1.1
Custom			
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SPDIF_OUT



SPDIF_IN

AZALIA JACK

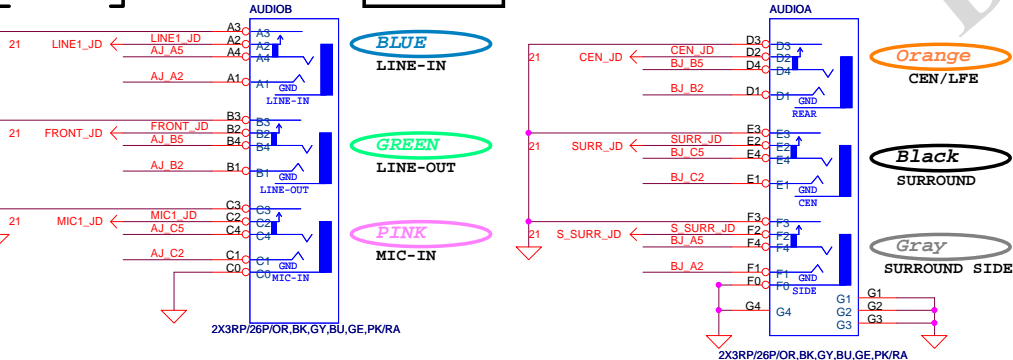


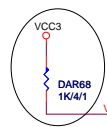
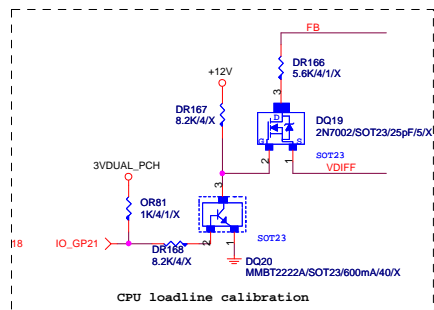
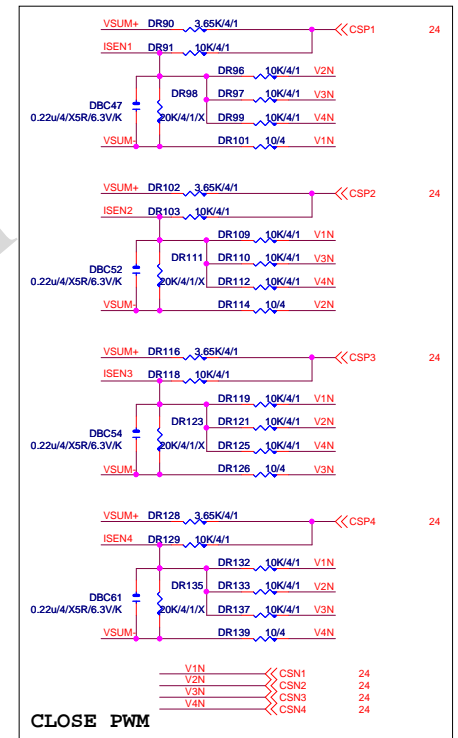
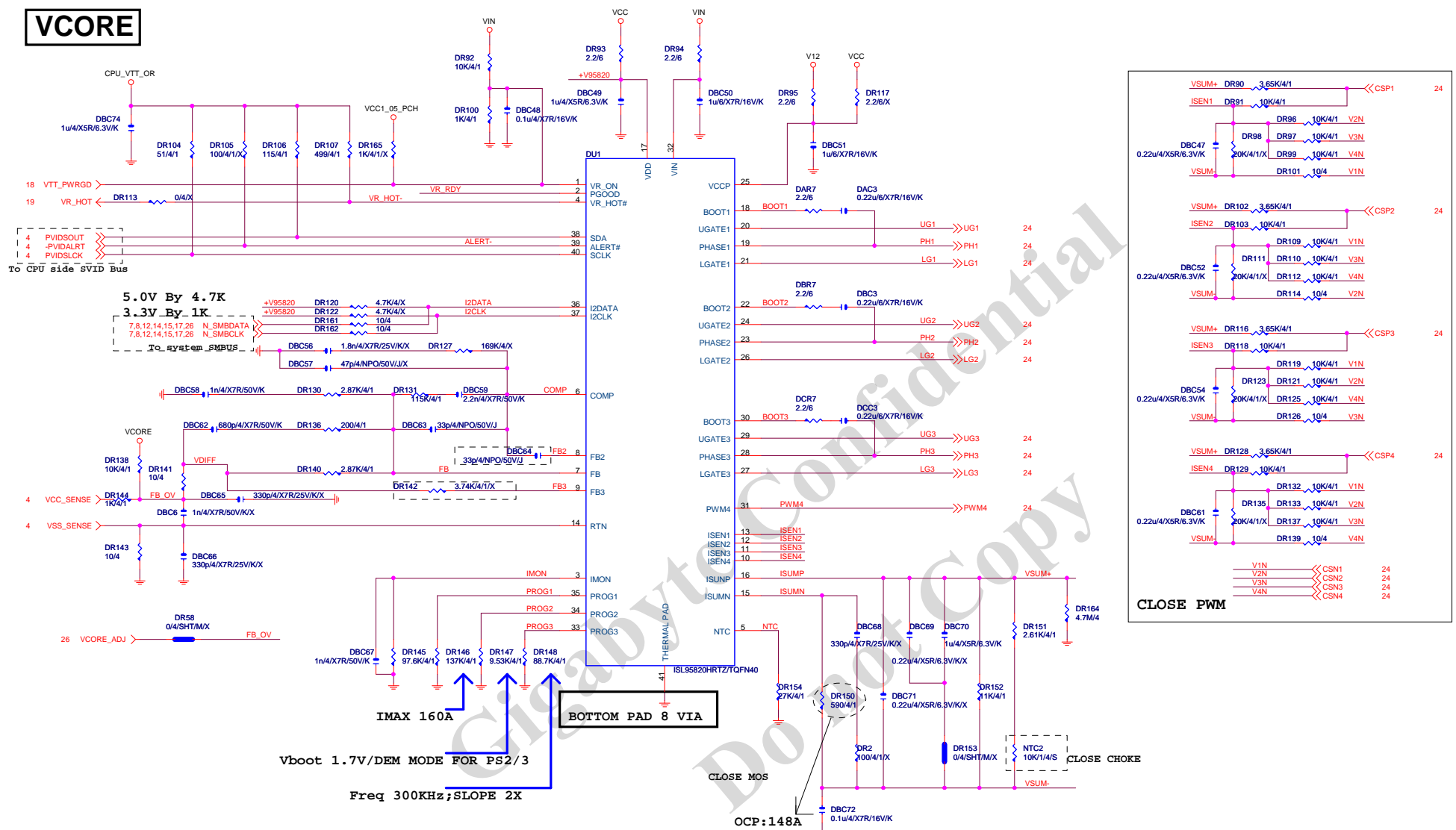
AZALIA JACK

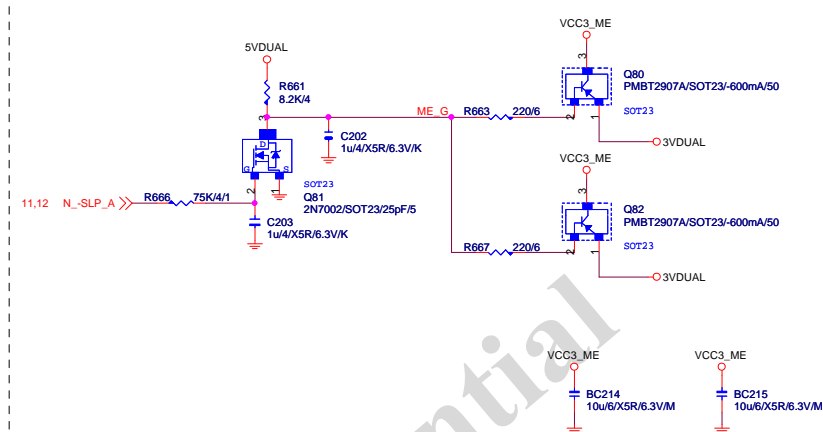
BLUE
LINE-IN

GREEN
LINE-OUT

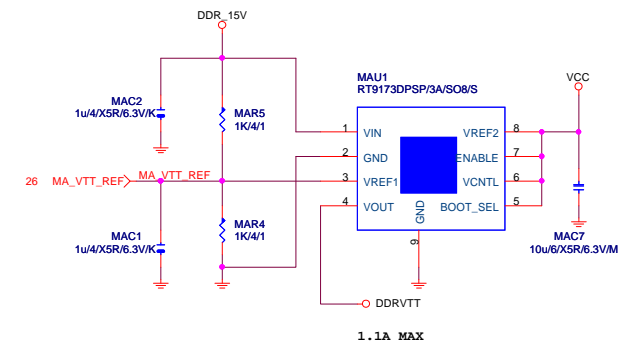
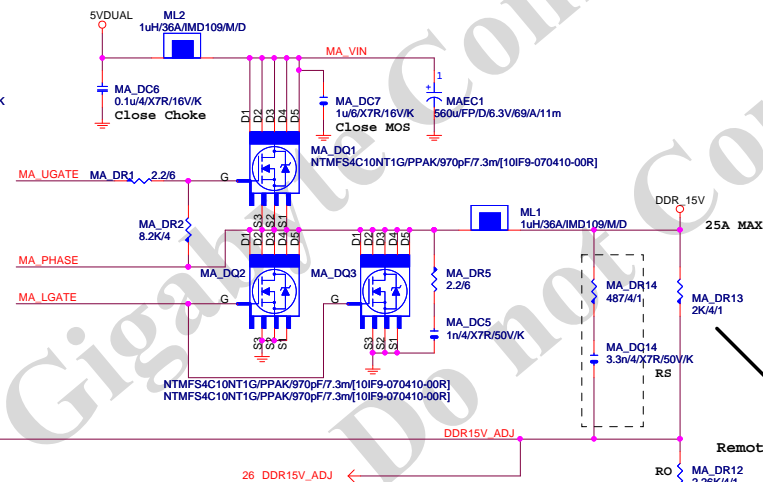
PINK
MIC-IN



VCORE



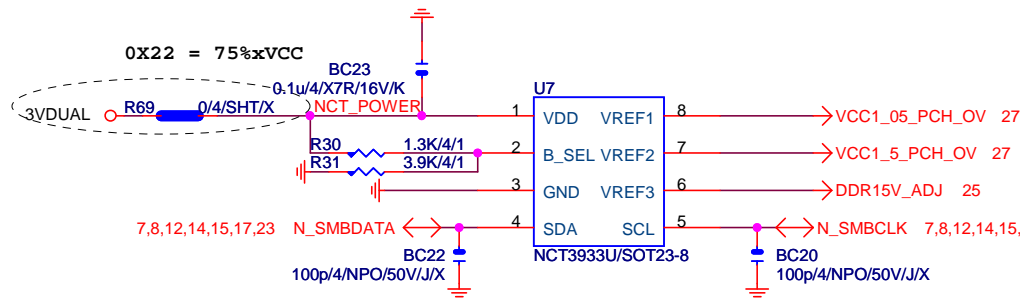
DDRVTT


$$\begin{aligned} 0.8 \cdot (1 + R_S/R_O) &= V_{out} \\ 0.8 \cdot [1 + 2K/2.26K] &= \\ 1.509V \end{aligned}$$

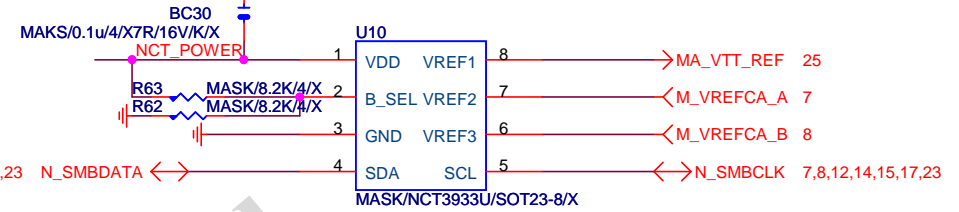
```
OCP:35.82A for Rds=6.7m for vishay@4.5V
OCP:72.727A for Rds=3.3m for renesas@10V
OCP:48A=Roset*Iocset / Rds(on)
      =12K*10uA / [5/5]
```

Title			
DDR15V / M3 POWER			
Size	Document Number	Rev	
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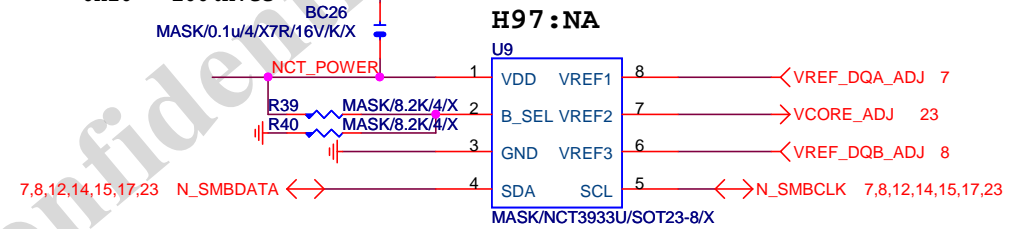
OVER VOLTAGE



0X2A = 0%xVCC



0X20 = 100%xVCC

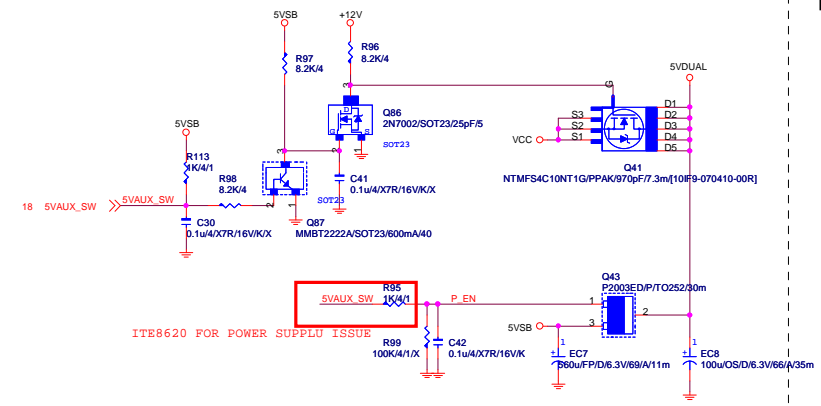


NCT3933	0X2A	0X20	0X22
VREF1	DDRVTT	VREF_DDRA_DQ	PCH Core
VREF2	VREF_DDRA_CA	N/A	VCC1_5_PCH
VREF3	VREF_DDRA_CA	VREF_DDRB_DQ	SMREF

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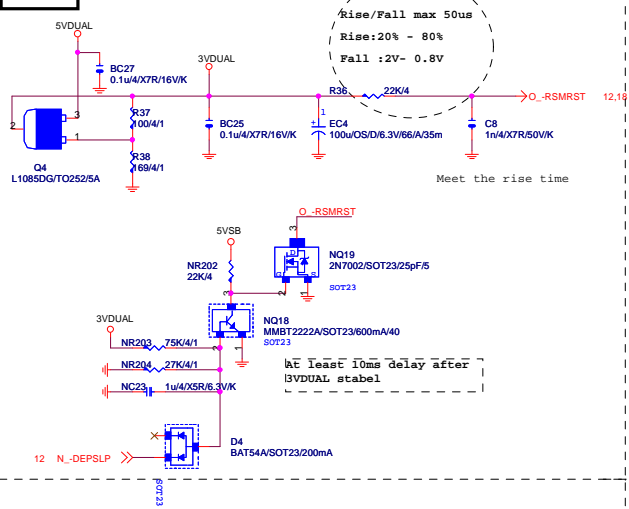
Title			CPU CORE VR-2
Size	Document Number	GA-H97-HD3	
Custom			Rev 1.1
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5VDUAL

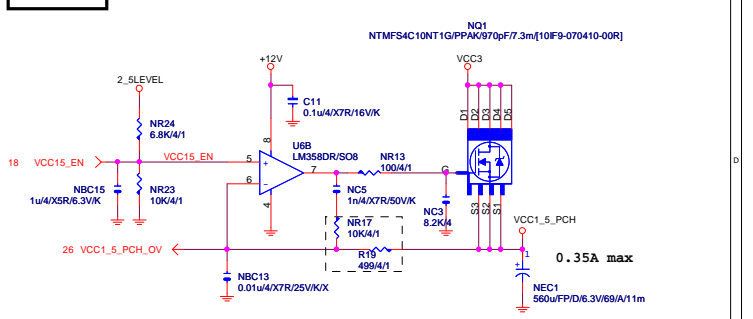


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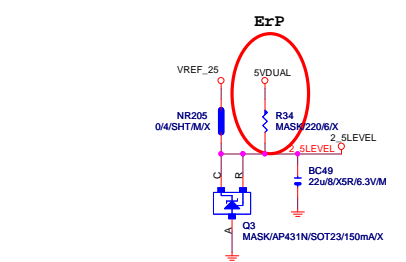
5VDUAL



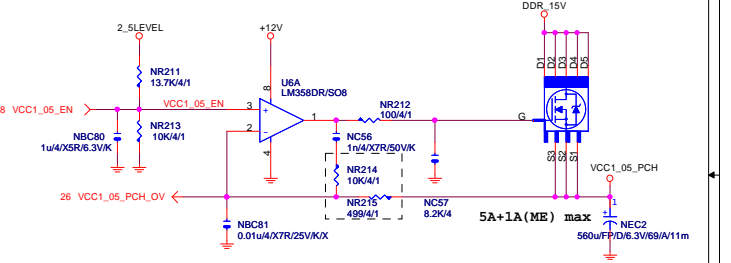
VCC1_5_PCH



2_5LEVEL



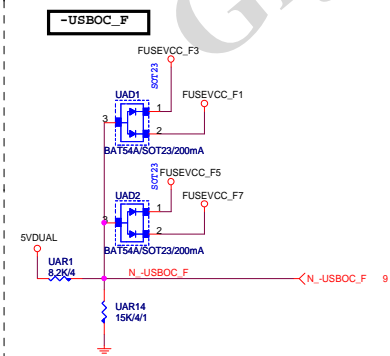
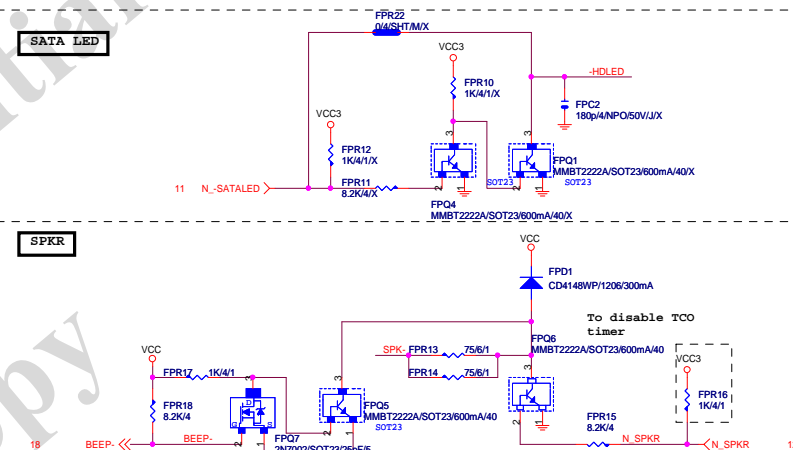
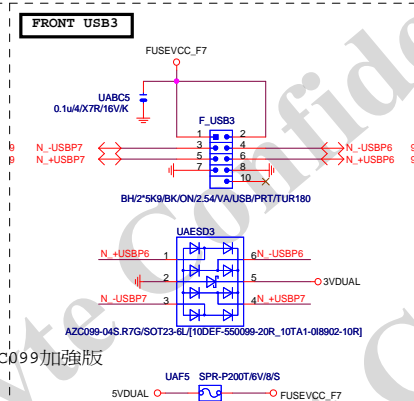
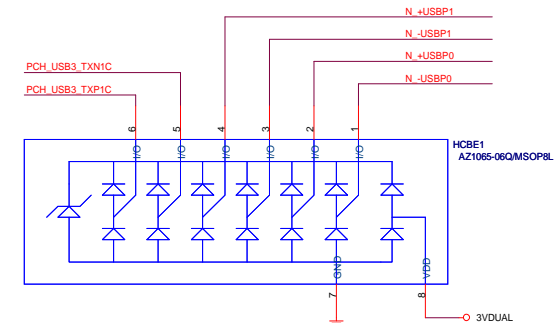
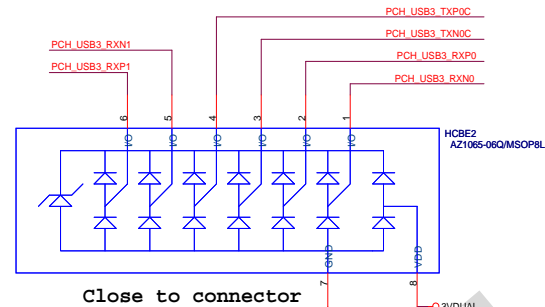
VCC1_05_PCH



PWR_SEQ

PCH ERP

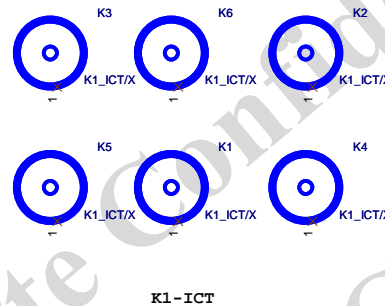
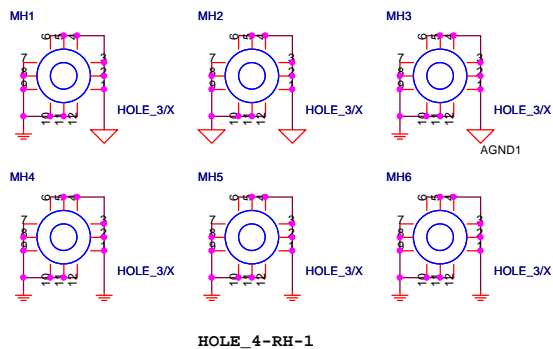
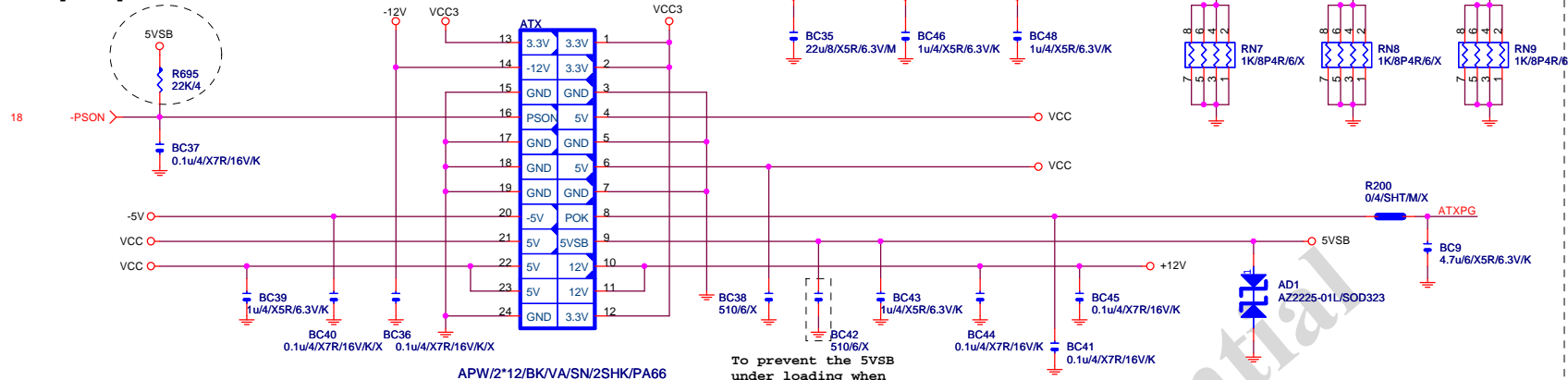
5VDUAL SHORT PROTECT

[illegible]

ATXX24 POWER CONNECTOR

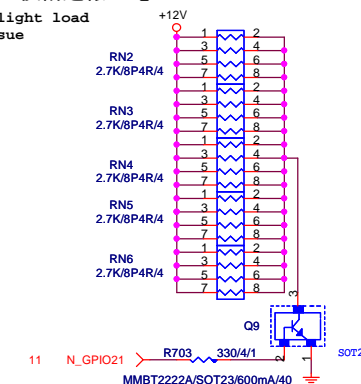
ATXX4 POWER CONNECTOR

Patch some PSU no internal pull up resistor



【技術通報R&D技術通報153】

To fix 12V light load abnormal issue



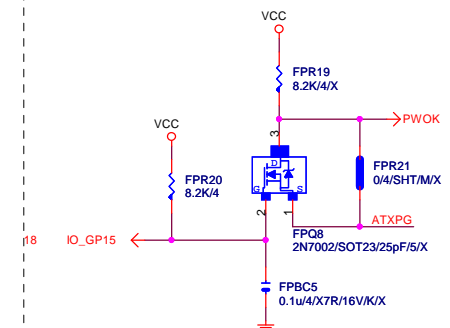
CLK GEN

CPU Frequency Selection

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

PWOK PATCH

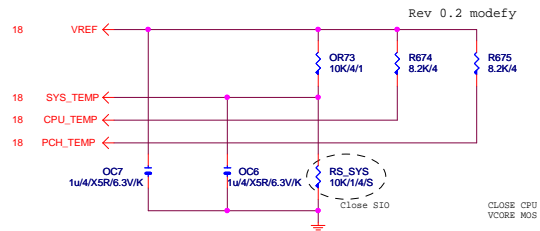
【技術通報R&D技術通報154】



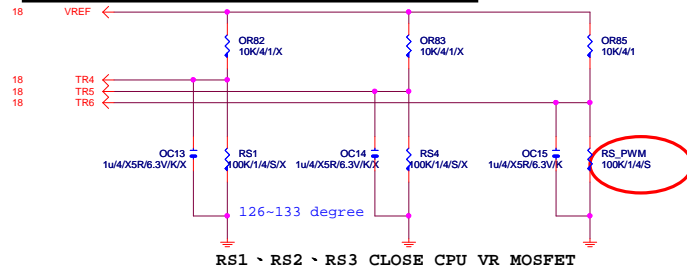
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Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
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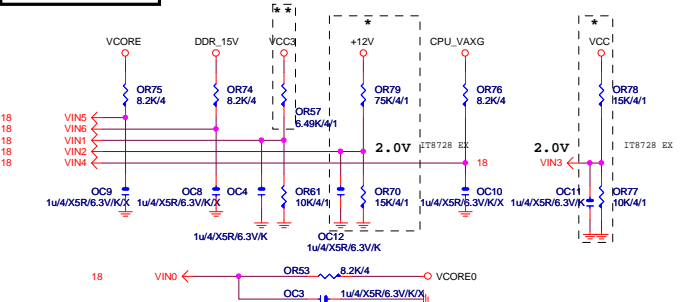
TEMP H/W MONITOR



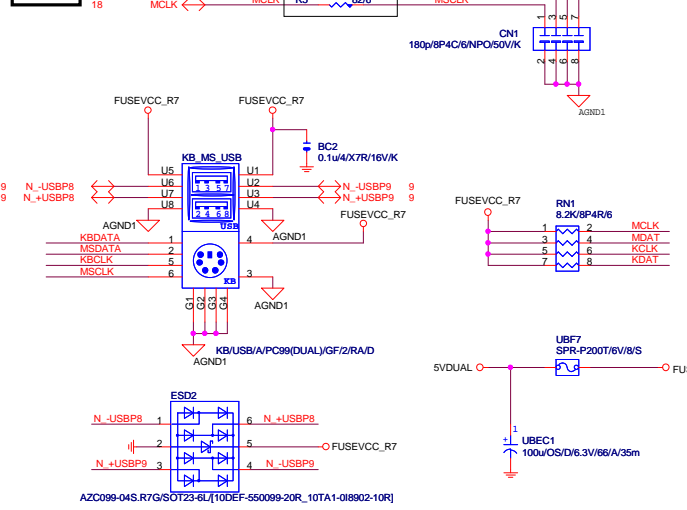
-PROCHOT:有mos heatsink不用prochot function



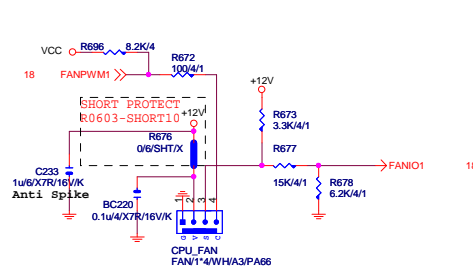
VOLTAGE-- H/W MONITOR



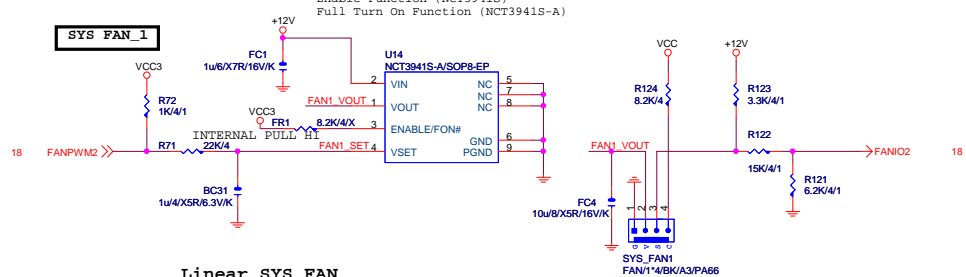
KB/USB



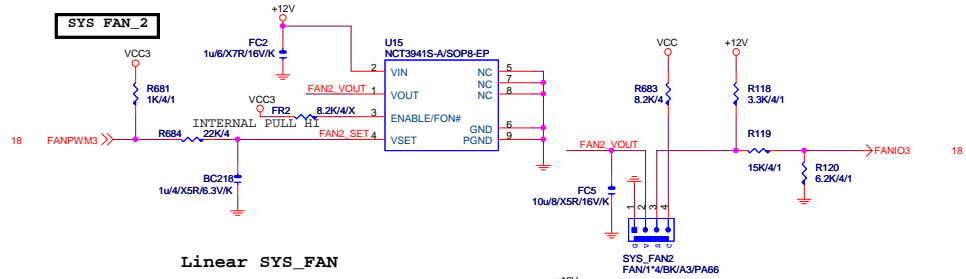
CPU FAN



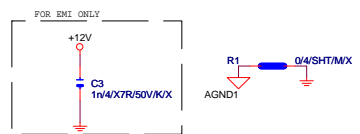
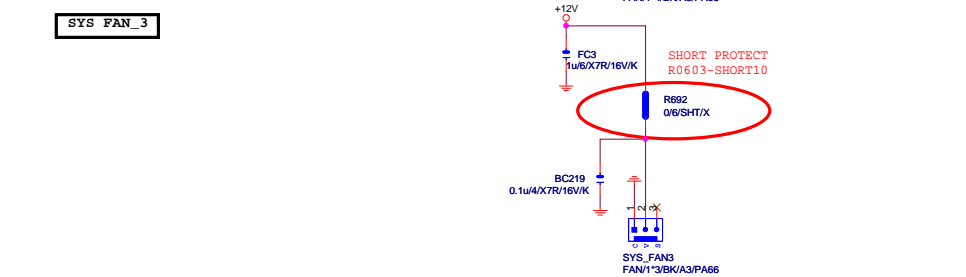
Linear SYS_FAN



Linear SYS_FAN



Linear SYS_FAN



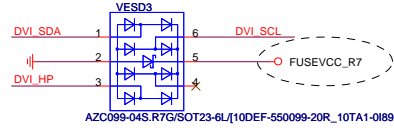
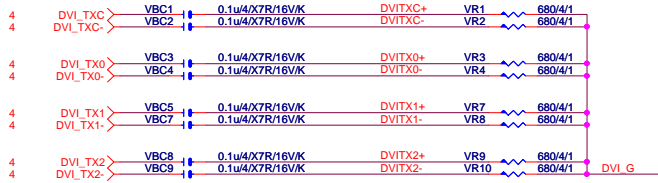
Gigabyte Technology

Title			
HWM,KB/MS, FAN CTRL			
Size	Document Number	Rev	
Custom	GA-H97-HD3	1.1	
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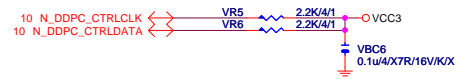
DVI LEVEL SHIFT

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

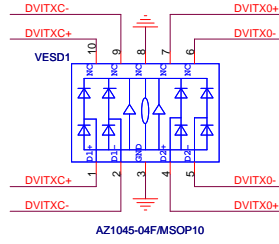
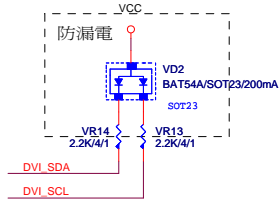
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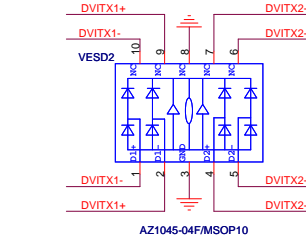
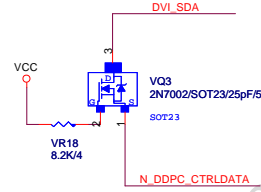
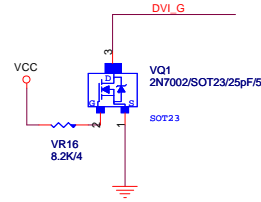
Close to connector



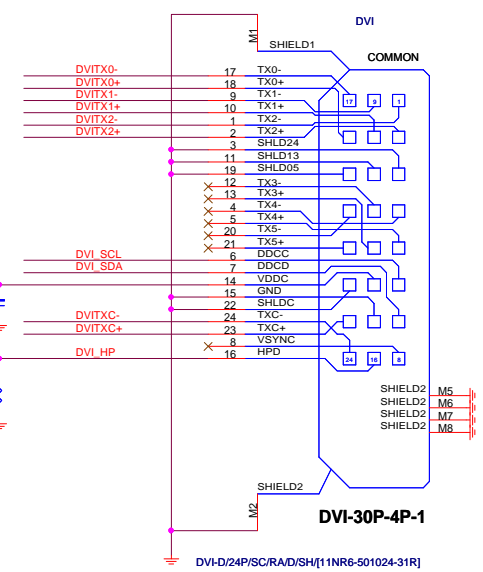
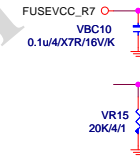
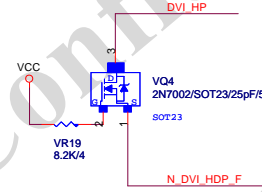
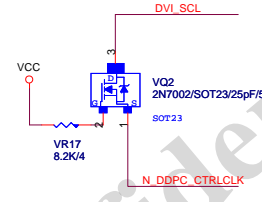
R&D技術通報 162



Close to connector

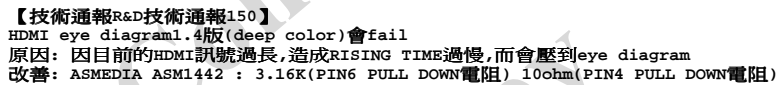


Close to connector



Gigabyte Technology

Title			
DVI			
Size	Document Number	Rev	
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PTN3360:PIN 4/10/34/35 NC PIN,都不上值;只上HR12:10K
ASM1442:紅色框要上,HR12:3.16K

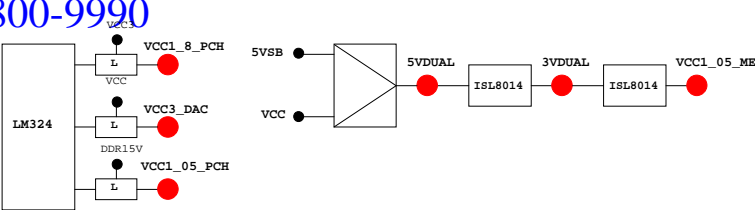
PCB GPIO LIST TABLE

PIN NAME	PWR	Default	USAGE	NOTE
GP0	MAIN	H-Z	GPIO0	N/A
GP1/TACH1	MAIN	GPI	GPIO1	N/A
GP2/PIRQE#	MAIN	GPI	~PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN	GPI	~PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN	GPI	~PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN	GPI	~PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN	GPI	PCIEX1 Detect	P/U 8.2K VCC3
GP7/TACH3	MAIN	MAIN	GPIO7	P/U 8.2K VCC3
GP8	STBY	H	GPIO8	N/A
GP9/OC5#	STBY	NATIVE	USB OC5#	N/A
GP10/OC6#	STBY	NATIVE	USB OC6#	N/A
GP11/SMBALERT#	STBY	NATIVE	USB PWR protect	P/U 8.2K 3VDUAL
GP12	STBY	L	GPIO12	N/A
GP13	STBY	L	LPCPME#	P/U 8.2K 3VDUAL
GP14/OC7#	STBY	NATIVE	USB OC7#	N/A
GP15	STBY	L	GPIO15(TL8 Enable)	P/U 8.2K 3VDUAL
GP16	MAIN	GPI	GPIO16	P/U 8.2K VCC3
GP17/TACH0	MAIN	GPI	GPIO17	P/U 8.2K VCC3
GP18	MAIN	GPI	Mobile Only	N/A
GP19	MAIN	GPI	GPIO19	P/U 8.2K VCC3
GP20	MAIN	GPI	GPIO20	P/U 8.2K VCC3
GP21	MAIN	GPI	GPIO21	P/U 8.2K VCC3
GP22	MAIN	H-Z	GPIO22	P/U 8.2K VCC3
GP23	MAIN	GPI	GPIO23	N/A
GP24	STBY	L	SKTOCC#	N/A
GP25	STBY		Mobile Only	N/A
GP26	STBY		Mobile Only	N/A
GP27	STBY	H	GPO	GPIO27
GP28	STBY	H	GPO	PWR LED
GP29	STBY	L	GPI	GPIO29
GP30	STBY	H-Z	GPI	Mobile Only
GP31	STBY	H-Z	GPI	Mobile Only
GP32	MAIN	H	GPO	N/A
GP33	MAIN	H	GPO	N/A
GP34	MAIN	H-Z	GPI	-PCI_STOP
GP35	MAIN	L	GPO	-ACZ_DET
GP36	MAIN	GPI	N/A	N/A
GP37	MAIN	GPI	N/A	N/A
GP38	MAIN	H-Z	GPI	PCIEX4 Detect
GP39	MAIN	H-Z	GPI	GPIO39
GP40	STBY	NATIVE	USB OC1#	N/A
GP41	STBY	NATIVE	USB OC2#	N/A
GP42	STBY	NATIVE	USB OC3#	N/A
GP43	STBY	NATIVE	USB OC4#	N/A
GP44	STBY	L	NATIVE	GPIO44
GP45	STBY	NATIVE	GPIO45	P/U 8.2K 3VDUAL
GP46	STBY	L	NATIVE	GPIO46
GP47	STBY		Mobile Only	N/A
GP48	MAIN	H-Z	IN	GPIO48
GP49	MAIN	H-Z	IN	GPIO49
GP50	MAIN	NATIVE	-REQ1	P/U 2.2K VCC
GP51	MAIN	H	NATIVE	-GNT1
GP52	MAIN	NATIVE	-REQ2	P/U 2.2K VCC
GP53	MAIN	H	NATIVE	-GNT2
GP54	MAIN	NATIVE	-REQ3	P/U 2.2K VCC
GP55	MAIN	H	NATIVE	-GNT3
GP56	STBY	NATIVE	Mobile Only	N/A
GP57	STBY	H-Z	IN	VCORE_OV1
GP58	STBY	H-Z	NATIVE	F_USB_OC
GP59	STBY	NATIVE	USB_OC0#	N/A
GP60	STBY	H-Z	NATIVE	N/A(Reverse)
GP61	STBY	L	NATIVE	-SUSTAT
GP62	STBY	L	NATIVE	SUSCLK
GP63	STBY	L	NATIVE	GPIO63
GP64	MAIN	L	NATIVE	CLKOUTFLEX0
GP65	MAIN	L	NATIVE	CLKOUTFLEX1
GP66	MAIN	L	NATIVE	CLKOUTFLEX2
GP67	MAIN	L	NATIVE	CLKOUTFLEX3
GP72	STBY	H-Z	NATIVE	VCORE_OV4
GP73	STBY		Mobile Only	N/A
GP74	STBY	H-Z	NATIVE	1_05V_OV2
GP75	STBY	H-Z	NATIVE	N/A(Reverse)

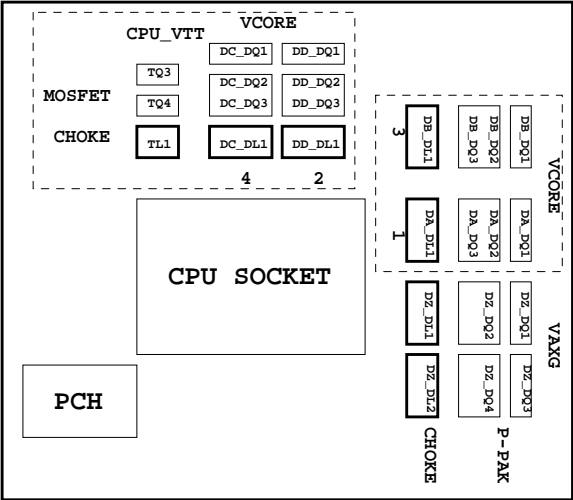
Super I/O ITE8720 GPIO Table

PIN NAME	USAGE	NOTE
SVC/PECI_RQT/GP14	-PECI_REQ	
PWROK1/GP13	PWROK1/ITE_PWROK	
KRST#/GP62	-KRST	
SO/GP50	-ICH_SPI_CS	
IRTX/GP47/CE2_N/JP7	CEB_N	
GP46/IRRX	-LAN2_DSM	
PSION#/GP42	-PSON	
PWROK2#/GP41	PECI_CTL	
PCIRST3#/GP10/VDIMM_STR_EN	-PCIE_RST	
RSMRST#CIRRX1/GP55	-RSMRST	
PME#/GP54	-LPCPME	
PD5/GP75/BUSS00	N/A	

PIN NAME	USAGE	NOTE
FAN_TAC2/GP52	FANIO2	
FAN_TAC3/GP37	FANIO3	
VIDO3/FAN_TAC4/GP25/DSR2#	FANIO4	
FAN_CTL2/GP51	FANPWM2	
FAN_CTL3/GP36	FANPWM3	
VID4/GP34	BEEP-	
VID3/GP33	TURBO1	
VID2/GP32	TURBO0	
VCORE_GOOD/VID6/GP63	CPUT_LED1_C	
VID5/GP35	CPUT_LED2_C	
VID1/GP31	CPUT_LED3_C	
VID0/GP30	-LAN1_DSM	NBT_LED1_C
SLCT/GP80	CPU_LED1_C	
PE/GP81	CPU_LED2_C	
BUSY/GP82	CPU_LED3_C	
PD3/GP73/BUSS11	SB_LED1_C	
PD4/GP74/BUSS12	SB_LED2_C	
VCORE_EN/VID7/GP64	IT_GP64	SB_LED3_C
PD0/GP70	NB_LED1_C	
PD1/GP71	NB_LED2_C	
PD2/GP72/BUSS10	NB_LED3_C	
GP22/SCK	LOW_PWR_1	
VID05/GP27/SIN2	LOW_PWR_2	
PCIRST2#/GP11	-PFMRST1	
PCIRST1#/GP12	-PFMRST2	
3VSB5W#/GP40	CSI_F0	BSEL166_1
SUSCH#/GP53	CSI_F1	BSEL166_2
GP23/SI	BSEL166_3/CsisBSL	
VID00/GP20/CTS2#	CPUT_LED1_C	BSEL166_4
GP65/VDDA_EN/GB_01	MB_ID2	
PD6/GP76/BUSS01	MB_ID3	
PD7/GP77/BUSS02	MB_ID4	
AFD#/GP86/SMBC_R	PIN	FST_2X8
INIT#/GP85/SMBC_M	SEC_2x8	GTLREF_AD2
ACK#/GP83	DDR_LED1_C	
VID01/GP21/DCD2#	DDR_LED2_C	
STB#/GP87/SMBC_M	DDR_LED3_C	
PWRON#/GP44	VCORE_OV1	
PANSWH#/GP43	PWRBTSW	
KDAT/GP61	-PWRBTSW	
KCLK/GP60	KDAT	
MDAT/GP57	KCLK	
MACL/GP56	MDAT	
GP66/VLDT_EN/GB_02	NBT_LED1_C	MCLK
SVD/PCIRSTIN#/CIRTX/GP15	PWM2_CR	
KDAT/GP61	PWM2_CR	
GP67/CPU_PG/GB_03	EN_LOADLINE	IT_GP67/-EN_PWM2
SLIN#/GP84/SMBC_R	-EN_PWM2	
PSI_L/FAN_CLT5/CIRRX2/GP16	-THERM	
VID04/GP26/SOUT2	DDR18V_PH2_EN	
VID02/FAN_TAC5/GP24/DSR2#	DDR18V_LED	
VID06/GP17/RI2#	1_1V_PH_EN	
VID07/JP6/DTR2#	JP6	
PD5/GP75/BUSS00	SB_LED3_C	



PWM各相位的擺法如下：



BIOS超電壓對應表：

散熱模組料號：

線路圖名稱	BIOS選項
Vcore	CPU Vcore
CPU_VTT	CPU Termination
CPU_VAXG	CPU Graphic Core
VCC1_8_PCH	CPU PLL
VCC1_05_PCH	PCH core
3VDUAL	3VDUAL
DDR15V	DRAM voltage
DDRVTT	DRAM Termination
VREF_CA_A/VREF_CA_B	DRAM Address Ref
VREF_DQ_A/VREF_DQ_B	DRAM Data Ref

	3 pin FAN control	4 pin FAN control	FAN speed	Controller
CPU FAN	FANPWM1	FANPWM3	FANIO1	IT8720
	ICH_FAN_PWM2	ICH_FAN_PWM0	ICH_FAN_TACH0	PCH
SYS FAN	FANPWM2	N/A	FANIO2	IT8720
	ICH_FAN_PWM1	N/A	ICH_FAN_TACH1	PCH
PWR FAN	N/A	N/A	FANIO3	IT8720
			ICH_FAN_TACH2	PCH

Gigabyte Technology			
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