

Model Name: GA-H81M-S2PH

Revision 1.01

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	ITE 8620 LPC IO
16	COM,KB_MS,USB PWR
17	IT8892E
18	PCI SLOT 1,2
19	PCI EXPRESS*1 SLOT.LPT
20	HWM,FAN CTRL,OV,-PROCHOT
21	DUAL BIOS
22	FP,F_USB,SPK,SATALED
23	Realtek ALC887-VD2
24	REAR AUDIO JACK
25	REALTEK RTL8111F
26	DISCRETE POWER
27	ATX,DUMMY LOAD

SHEET

TITLE

28	RT8120_DDR POWER
29	VCORE ISL95812_1
30	VCORE ISL95812_2
31	HDMI

www.aitech1.ru

Gigabyte Technology

Title			Cover Sheet
Size	Document Number	GA-H81M-S2PH	
Custom		Rev	1.01
Date:	Monday, July 15, 2013	Sheet	1 of 31

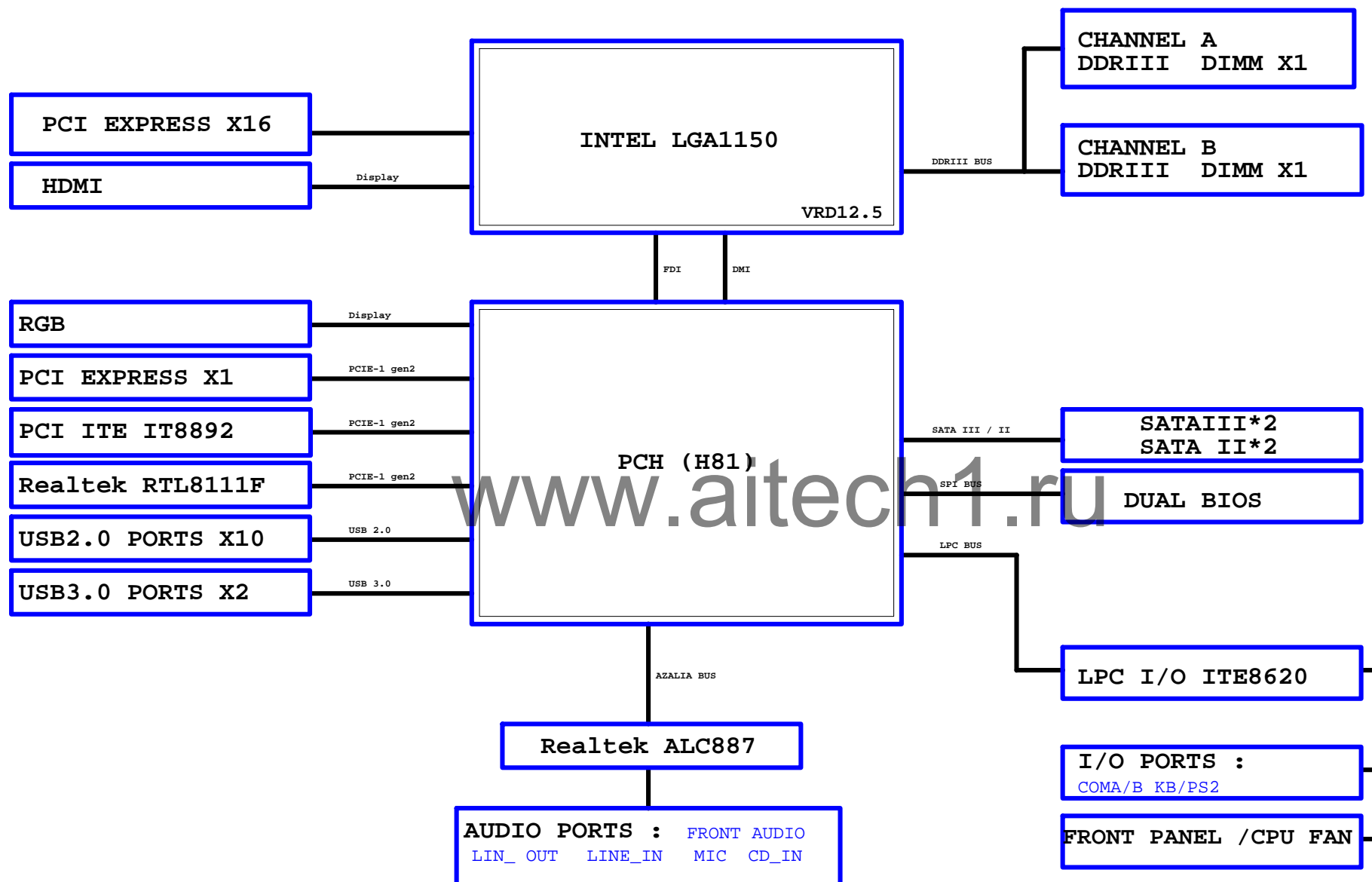
Revision 1.01

2013/07/15

www.aitech1.ru

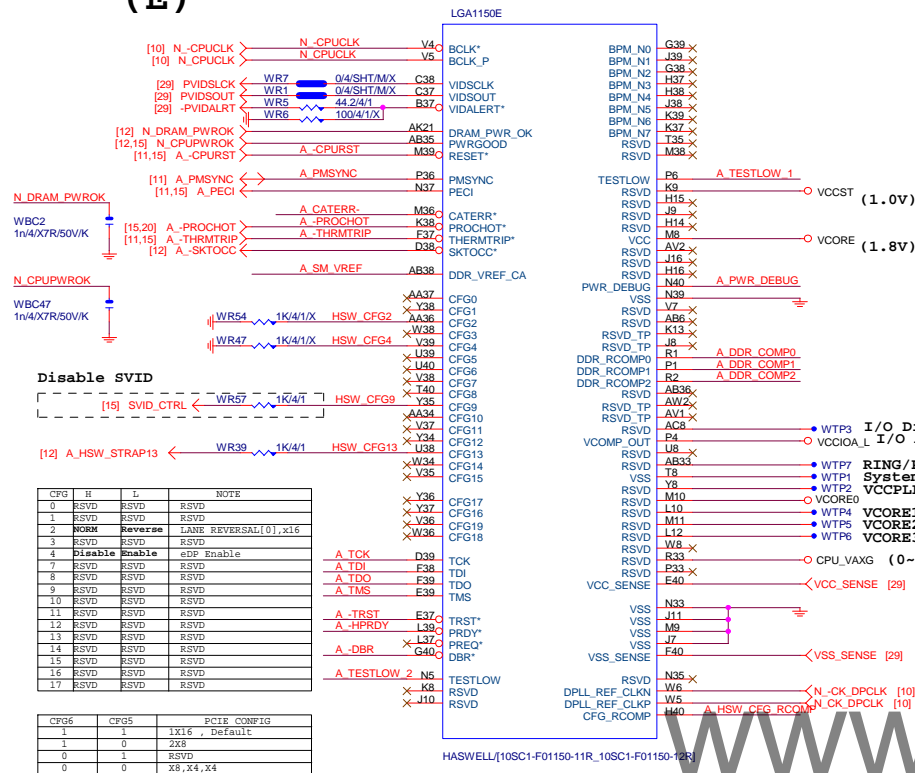
[illegible]

BLOCK DIAGRAM



LGA1150

(E)



LGA1155

(C)

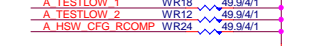
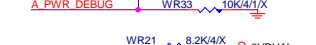
PCIEX16:16/5/5/5/16(breakout min 10/4/4/4/10)
Impedance=80 +- 17.5%



CPU SVID



CPU PU/PD

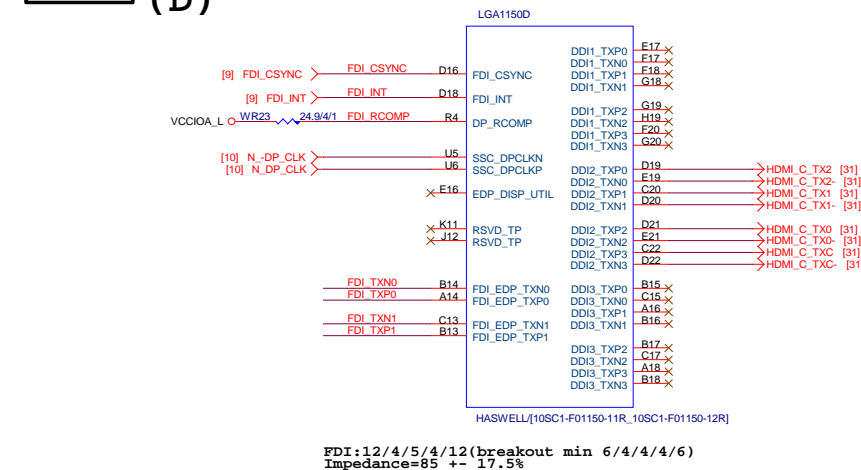


SM REF



LGA1150

(D)

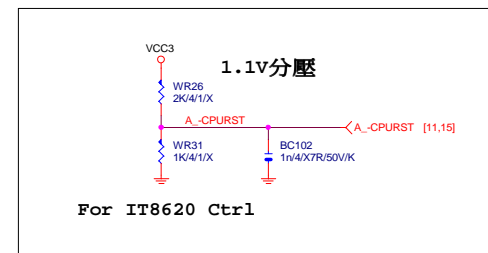


FDI:12/4/5/4/12(breakout min 6/4/4/4/6)
Impedance=85 +- 17.5%



-CPURST

FOR IT8620 Ctrl1



For IT8620 Ctrl1

THRMTRIP DISABLE

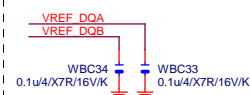
Gigabyte Technology

Title			CPU LGA1150-A
Size	Document Number	GA-H81M-S2PH	
Custom		Rev	1.0
Date	Monday, July 15, 2013	Sheet	4 of 31

LGA1150A			
MAAA0	AU13	DDR0_M0	DDR0_D00
MAAA1	AV16	DDR0_M1	DDR0_D01
MAAA2	AU16	DDR0_M2	DDR0_D02
MAAA3	AW17	DDR0_M3	DDR0_D03
MAAA4	AU17	DDR0_M4	DDR0_D04
MAAA5	AU18	DDR0_M5	DDR0_D05
MAAA6	AV17	DDR0_M6	DDR0_D06
MAAA7	AT18	DDR0_M7	DDR0_D07
MAAA8	AU18	DDR0_M8	DDR0_D08
MAAA9	AT19	DDR0_M9	DDR0_D09
MAAA10	AW11	DDR0_M10	DDR0_D10
MAAA11	AV19	DDR0_M11	DDR0_D11
MAAA12	AU19	DDR0_M12	DDR0_D12
MAAA13	AY10	DDR0_M13	DDR0_D13
MAAA14	AT20	DDR0_M14	DDR0_D14
MAAA15	AU21	DDR0_M15	DDR0_D15
MODT_A0	AW10	DDR0_ODT0	DDR0_ODT0
MODT_A1	AY8	DDR0_ODT1	DDR0_ODT1
AW9	AW9	DDR0_ODT2	DDR0_ODT2
AW8	AW8	DDR0_ODT3	DDR0_ODT3
AW33	AW33	DDR0_ECC0	DDR0_ECC0
AW33	AW33	DDR0_ECC1	DDR0_ECC1
AW33	AW33	DDR0_ECC2	DDR0_ECC2
AW33	AW33	DDR0_ECC3	DDR0_ECC3
AW33	AW33	DDR0_ECC4	DDR0_ECC4
AW33	AW33	DDR0_ECC5	DDR0_ECC5
AW33	AW33	DDR0_ECC6	DDR0_ECC6
AW33	AW33	DDR0_ECC7	DDR0_ECC7
SBAA0	SBAA0	DDR0_BA0	DDR0_BA0
SBAA1	SBAA1	DDR0_BA1	DDR0_BA1
SBAA2	SBAA2	DDR0_BA2	DDR0_BA2
CKEA0	CKEA0	DDR0_CKE0	DDR0_CKE0
CKEA1	CKEA1	DDR0_CKE1	DDR0_CKE1
CSA0	CSA0	DDR0_CS_N0	DDR0_CS_N0
CSA1	CSA1	DDR0_CS_N1	DDR0_CS_N1
DCLKA0	DCLKA0	DDR0_CLK_P0	DDR0_CLK_P0
DCLKA1	DCLKA1	DDR0_CLK_P1	DDR0_CLK_P1
DCLKA2	DCLKA2	DDR0_CLK_P2	DDR0_CLK_P2
DCLKA3	DCLKA3	DDR0_CLK_P3	DDR0_CLK_P3
DCLKA4	DCLKA4	DDR0_CLK_P4	DDR0_CLK_P4
DCLKA5	DCLKA5	DDR0_CLK_P5	DDR0_CLK_P5
DCLKA6	DCLKA6	DDR0_CLK_P6	DDR0_CLK_P6
DCLKA7	DCLKA7	DDR0_CLK_P7	DDR0_CLK_P7
DCLKA8	DCLKA8	DDR0_CLK_P8	DDR0_CLK_P8
DCLKA9	DCLKA9	DDR0_CLK_P9	DDR0_CLK_P9
DCLKA10	DCLKA10	DDR0_CLK_P10	DDR0_CLK_P10
DCLKA11	DCLKA11	DDR0_CLK_P11	DDR0_CLK_P11
DCLKA12	DCLKA12	DDR0_CLK_P12	DDR0_CLK_P12
DCLKA13	DCLKA13	DDR0_CLK_P13	DDR0_CLK_P13
DCLKA14	DCLKA14	DDR0_CLK_P14	DDR0_CLK_P14
DCLKA15	DCLKA15	DDR0_CLK_P15	DDR0_CLK_P15
RSVD	RSVD	DDR0_RSVD	DDR0_RSVD
SRASA	SRASA	DDR0_RAS*	DDR0_RAS*
SWEA	SWEA	DDR0_WE*	DDR0_WE*
SCASA	SCASA	DDR0_CAS*	DDR0_CAS*
DDR3_RST	DDR3_RST	DDR0_RESET*	DDR0_RESET*

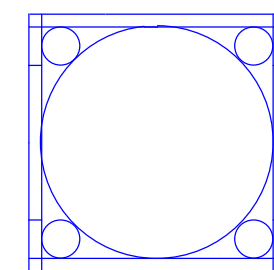
HASWELL(10SC1-F01150-11R_10SC1-F01150-12R)

Place in CPU bottom side



LGA1150B			
MAAB0	AL19	DDR1_M0	DDR1_D00
MAAB1	AK23	DDR1_M1	DDR1_D01
MAAB2	AK22	DDR1_M2	DDR1_D02
MAAB3	AM23	DDR1_M3	DDR1_D03
MAAB4	AP23	DDR1_M4	DDR1_D04
MAAB5	AL23	DDR1_M5	DDR1_D05
MAAB6	AV24	DDR1_M6	DDR1_D06
MAAB7	AV25	DDR1_M7	DDR1_D07
MAAB8	AV26	DDR1_M8	DDR1_D08
MAAB9	AW25	DDR1_M9	DDR1_D09
MAAB10	AP18	DDR1_M10	DDR1_D10
MAAB11	AV26	DDR1_M11	DDR1_D11
MAAB12	AV26	DDR1_M12	DDR1_D12
MAAB13	AV15	DDR1_M13	DDR1_D13
MAAB14	AV27	DDR1_M14	DDR1_D14
MAAB15	AV28	DDR1_M15	DDR1_D15
MODT_B0	AM17	DDR1_ODT0	DDR1_ODT0
MODT_B1	AL16	DDR1_ODT1	DDR1_ODT1
AW16	AW16	DDR1_ODT2	DDR1_ODT2
AK15	AK15	DDR1_ODT3	DDR1_ODT3
AW26	AW26	DDR1_ECC0	DDR1_ECC0
AW25	AW25	DDR1_ECC1	DDR1_ECC1
AW26	AW26	DDR1_ECC2	DDR1_ECC2
AW26	AW26	DDR1_ECC3	DDR1_ECC3
AW26	AW26	DDR1_ECC4	DDR1_ECC4
AW26	AW26	DDR1_ECC5	DDR1_ECC5
AW26	AW26	DDR1_ECC6	DDR1_ECC6
AW26	AW26	DDR1_ECC7	DDR1_ECC7
SBAB0	SBAB0	DDR1_BA0	DDR1_BA0
SBAB1	SBAB1	DDR1_BA1	DDR1_BA1
SBAB2	SBAB2	DDR1_BA2	DDR1_BA2
CKEB0	CKEB0	DDR1_CKE0	DDR1_CKE0
CKEB1	CKEB1	DDR1_CKE1	DDR1_CKE1
CSB0	CSB0	DDR1_CS_N0	DDR1_CS_N0
CSB1	CSB1	DDR1_CS_N1	DDR1_CS_N1
DCLKB0	DCLKB0	DDR1_CLK_P0	DDR1_CLK_P0
DCLKB1	DCLKB1	DDR1_CLK_P1	DDR1_CLK_P1
DCLKB2	DCLKB2	DDR1_CLK_P2	DDR1_CLK_P2
DCLKB3	DCLKB3	DDR1_CLK_P3	DDR1_CLK_P3
DCLKB4	DCLKB4	DDR1_CLK_P4	DDR1_CLK_P4
DCLKB5	DCLKB5	DDR1_CLK_P5	DDR1_CLK_P5
DCLKB6	DCLKB6	DDR1_CLK_P6	DDR1_CLK_P6
DCLKB7	DCLKB7	DDR1_CLK_P7	DDR1_CLK_P7
DCLKB8	DCLKB8	DDR1_CLK_P8	DDR1_CLK_P8
DCLKB9	DCLKB9	DDR1_CLK_P9	DDR1_CLK_P9
DCLKB10	DCLKB10	DDR1_CLK_P10	DDR1_CLK_P10
DCLKB11	DCLKB11	DDR1_CLK_P11	DDR1_CLK_P11
DCLKB12	DCLKB12	DDR1_CLK_P12	DDR1_CLK_P12
DCLKB13	DCLKB13	DDR1_CLK_P13	DDR1_CLK_P13
DCLKB14	DCLKB14	DDR1_CLK_P14	DDR1_CLK_P14
DCLKB15	DCLKB15	DDR1_CLK_P15	DDR1_CLK_P15
RSVD	RSVD	DDR1_RSVD	DDR1_RSVD
SRASB	SRASB	DDR1_RAS*	DDR1_RAS*
SWEB	SWEB	DDR1_WE*	DDR1_WE*
VREF_DQA	VREF_DQA	DDR1_VREF_DQA	DDR1_VREF_DQA
VREF_DQB	VREF_DQB	DDR1_VREF_DQB	DDR1_VREF_DQB
DQSA0	DQSA0	DDR1_DQS_P0	DDR1_DQS_P0
DQSA1	DQSA1	DDR1_DQS_P1	DDR1_DQS_P1
DQSA2	DQSA2	DDR1_DQS_P2	DDR1_DQS_P2
DQSA3	DQSA3	DDR1_DQS_P3	DDR1_DQS_P3
DQSA4	DQSA4	DDR1_DQS_P4	DDR1_DQS_P4
DQSA5	DQSA5	DDR1_DQS_P5	DDR1_DQS_P5
DQSA6	DQSA6	DDR1_DQS_P6	DDR1_DQS_P6
DQSA7	DQSA7	DDR1_DQS_P7	DDR1_DQS_P7
DQSA8	DQSA8	DDR1_DQS_P8	DDR1_DQS_P8
DQSA9	DQSA9	DDR1_DQS_P9	DDR1_DQS_P9
DQSA10	DQSA10	DDR1_DQS_P10	DDR1_DQS_P10
DQSA11	DQSA11	DDR1_DQS_P11	DDR1_DQS_P11
DQSA12	DQSA12	DDR1_DQS_P12	DDR1_DQS_P12
DQSA13	DQSA13	DDR1_DQS_P13	DDR1_DQS_P13
DQSA14	DQSA14	DDR1_DQS_P14	DDR1_DQS_P14
DQSA15	DQSA15	DDR1_DQS_P15	DDR1_DQS_P15
AE34	AE34	DDR1_AE34	DDR1_AE34
AE35	AE35	DDR1_AE35	DDR1_AE35
AG35	AG35	DDR1_AG35	DDR1_AG35
AD34	AD34	DDR1_AD34	DDR1_AD34
AD35	AD35	DDR1_AD35	DDR1_AD35
AG34	AG34	DDR1_AG34	DDR1_AG34
AD34	AD34	DDR1_AD34	DDR1_AD34
AD35	AD35	DDR1_AD35	DDR1_AD35
AD36	AD36	DDR1_AD36	DDR1_AD36
AD37	AD37	DDR1_AD37	DDR1_AD37
AD38	AD38	DDR1_AD38	DDR1_AD38
AD39	AD39	DDR1_AD39	DDR1_AD39
AD40	AD40	DDR1_AD40	DDR1_AD40
AD41	AD41	DDR1_AD41	DDR1_AD41
AD42	AD42	DDR1_AD42	DDR1_AD42
AD43	AD43	DDR1_AD43	DDR1_AD43
AD44	AD44	DDR1_AD44	DDR1_AD44
AD45	AD45	DDR1_AD45	DDR1_AD45
AD46	AD46	DDR1_AD46	DDR1_AD46
AD47	AD47	DDR1_AD47	DDR1_AD47
AD48	AD48	DDR1_AD48	DDR1_AD48
AD49	AD49	DDR1_AD49	DDR1_AD49
AD50	AD50	DDR1_AD50	DDR1_AD50
AD51	AD51	DDR1_AD51	DDR1_AD51
AD52	AD52	DDR1_AD52	DDR1_AD52
AD53	AD53	DDR1_AD53	DDR1_AD53
AD54	AD54	DDR1_AD54	DDR1_AD54
AD55	AD55	DDR1_AD55	DDR1_AD55
AD56	AD56	DDR1_AD56	DDR1_AD56
AD57	AD57	DDR1_AD57	DDR1_AD57
AD58	AD58	DDR1_AD58	DDR1_AD58
AD59	AD59	DDR1_AD59	DDR1_AD59
AD60	AD60	DDR1_AD60	DDR1_AD60
AD61	AD61	DDR1_AD61	DDR1_AD61
AD62	AD62	DDR1_AD62	DDR1_AD62
AD63	AD63	DDR1_AD63	DDR1_AD63
AD64	AD64	DDR1_AD64	DDR1_AD64
AD65	AD65	DDR1_AD65	DDR1_AD65
AD66	AD66	DDR1_AD66	DDR1_AD66
AD67	AD67	DDR1_AD67	DDR1_AD67
AD68	AD68	DDR1_AD68	DDR1_AD68
AD69	AD69	DDR1_AD69	DDR1_AD69
AD70	AD70	DDR1_AD70	DDR1_AD70
AD71	AD71	DDR1_AD71	DDR1_AD71
AD72	AD72	DDR1_AD72	DDR1_AD72
AD73	AD73	DDR1_AD73	DDR1_AD73
AD74	AD74	DDR1_AD74	DDR1_AD74
AD75	AD75	DDR1_AD75	DDR1_AD75
AD76	AD76	DDR1_AD76	DDR1_AD76
AD77	AD77	DDR1_AD77	DDR1_AD77
AD78	AD78	DDR1_AD78	DDR1_AD78
AD79	AD79	DDR1_AD79	DDR1_AD79
AD80	AD80	DDR1_AD80	DDR1_AD80
AD81	AD81	DDR1_AD81	DDR1_AD81
AD82	AD82	DDR1_AD82	DDR1_AD82
AD83	AD83	DDR1_AD83	DDR1_AD83
AD84	AD84	DDR1_AD84	DDR1_AD84
AD85	AD85	DDR1_AD85	DDR1_AD85
AD86	AD86	DDR1_AD86	DDR1_AD86
AD87	AD87	DDR1_AD87	DDR1_AD87
AD88	AD88	DDR1_AD88	DDR1_AD88
AD89	AD89	DDR1_AD89	DDR1_AD89
AD90	AD90	DDR1_AD90	DDR1_AD90
AD91	AD91	DDR1_AD91	DDR1_AD91
AD92	AD92	DDR1_AD92	DDR1_AD92
AD93	AD93	DDR1_AD93	DDR1_AD93
AD94	AD94	DDR1_AD94	DDR1_AD94
AD95	AD95	DDR1_AD95	DDR1_AD95
AD96	AD96	DDR1_AD96	DDR1_AD96
AD97	AD97	DDR1_AD97	DDR1_AD97
AD98	AD98	DDR1_AD98	DDR1_AD98
AD99	AD99	DDR1_AD99	DDR1_AD99

HASWELL(10SC1-F01150-11R_10SC1-F01150-12R)

CR
CPU RETENTION/X

LGA1150_P



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

DDR BUS

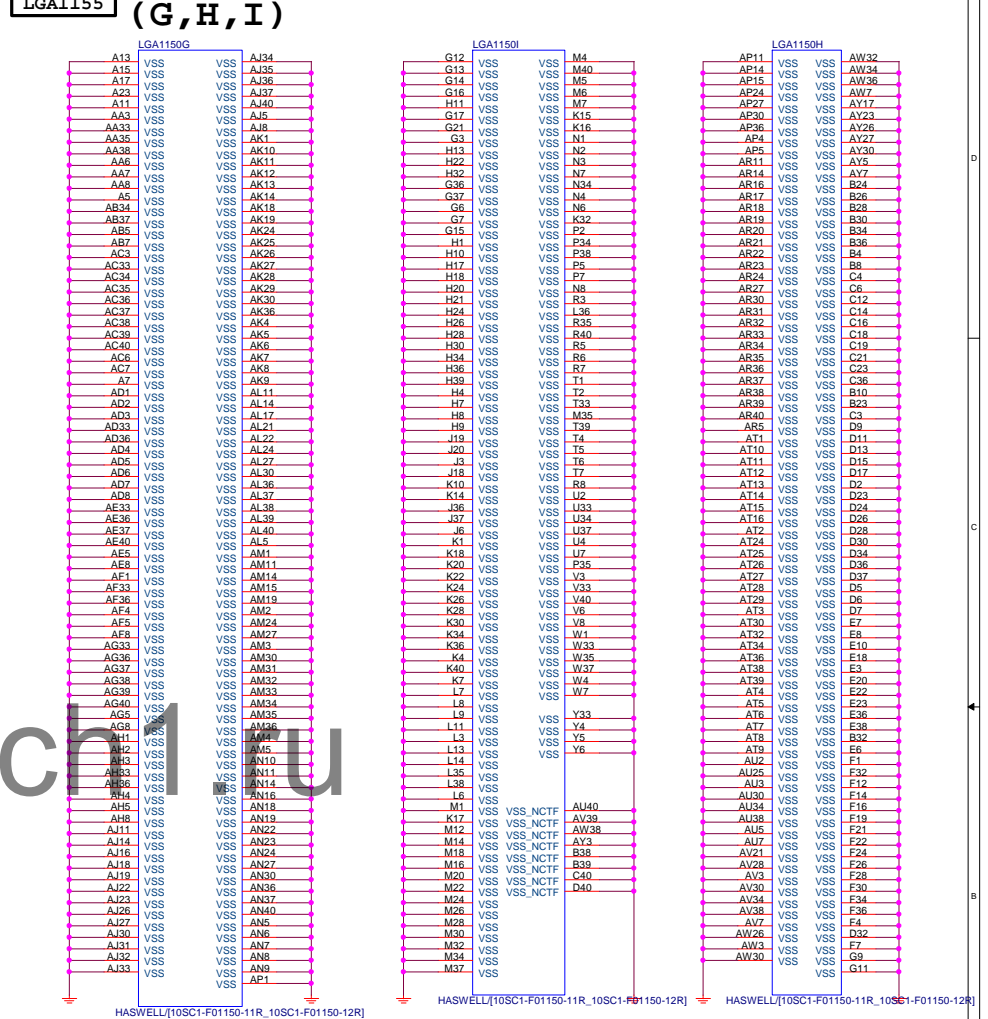
[7] MODT_A[0..1]	MODT_A[0..1]
[8] MODT_B[0..1]	MODT_B[0..1]
[7] MDA[0..63]	MDA[0..63]
[8] MDB[0..63]	MDB[0..63]
[7] DQSA[0..7]	DQSA[0..7]
[7] -DQSA[0..7]	-DQSA[0..7]
[7] MAAA[0..15]	MAAA[0..15]
[8] MAAB[0..15]	MAAB[0..15]
[8] DQSB[0..7]	DQSB[0..7]
[8] -DQSB[0..7]	-DQSB[0..7]

Gigabyte Technology

CPU LGA1156-B

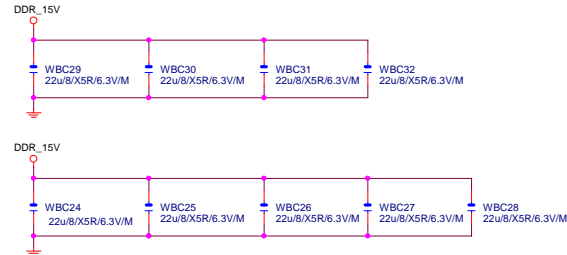
Title		CPU LGA1156-B	
Size	Document Number	GA-H81M-S2PH	
Custom		Rev 1.01	
Date:	Monday, July 15, 2013	Sheet	5 of 31

LGA1155 (G,H,I)



DDR CAP

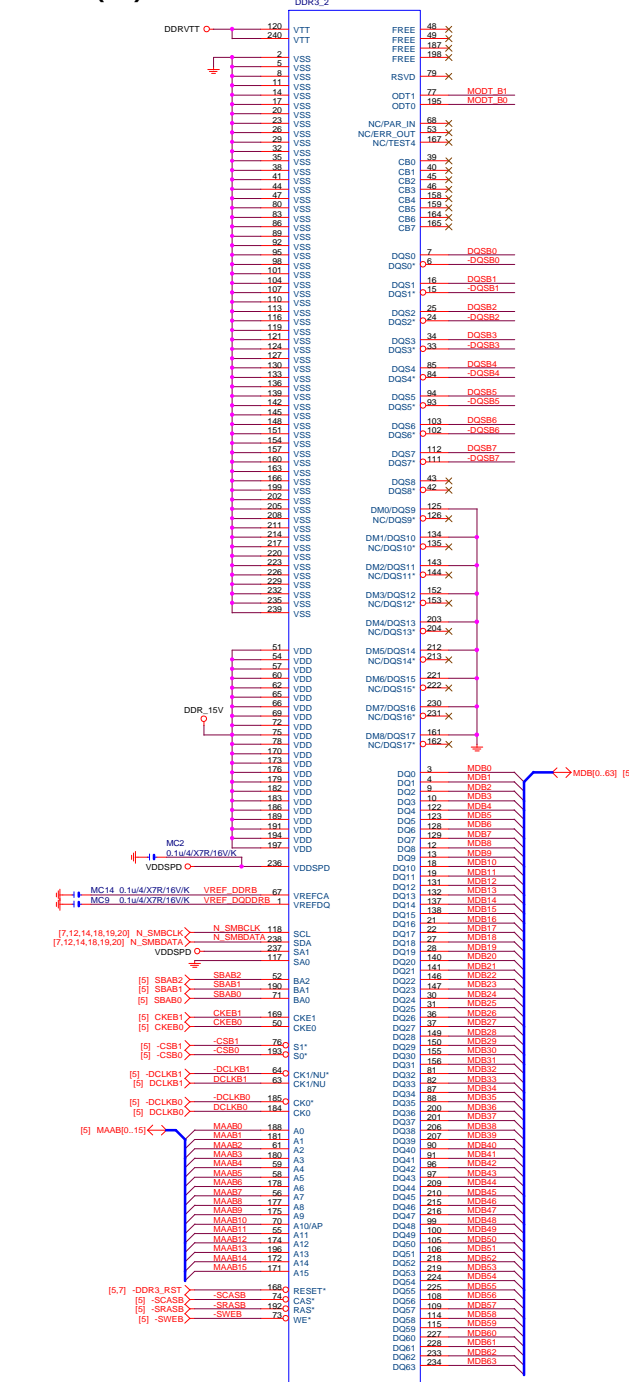
(x9)



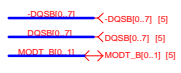
Title			
CPU LGA1150-C			
Size	Document Number	Rev	
Custom	GA-H81M-S2PH	1.01	
Date:	Monday, July 15, 2013	Sheet	6 of 31

DDR3

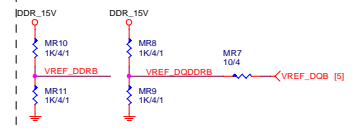
(B)



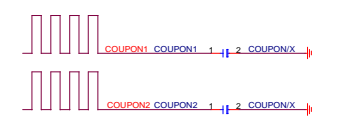
DDR3_240/BK/VA/D
BLACK CONNECTOR



DDR3 VREF



COUPON



CPU

DTMM1 CHA

DTMM2 CHB

www.aitech1.ru

Gigabyte Technology

Size		Document Number		Rev
Custom	GA-H81M-S2PH			1.01
Date:	Sheet		8	of 31

DMI:12/4/4/4/12(breakout min 8/4/4/4/8)

VCC1_5_PCH

NR50 7.5K/4/1 DMI_COMP B

NR40 7.5K/4/1 PCIE_COMP C

CK -SRCCLK_PCH G

CK_SRCCLK_PCH F

```

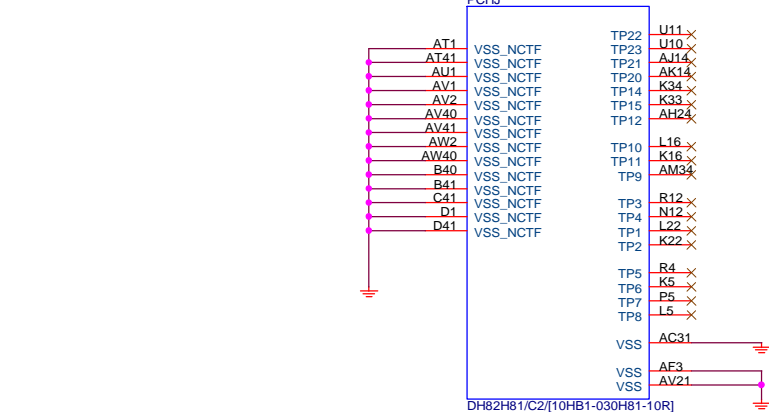
[25] LA_ML_IN  >
[25] LA_ML_IP  >
[25] LA_ML_ON  >
[25] LA_ML_OP  >

[17] G_PCIEBIN  >
[17] G_PCIEBIP  >
[17] G_PCIEBON  >
[17] G_PCIEBOP  >

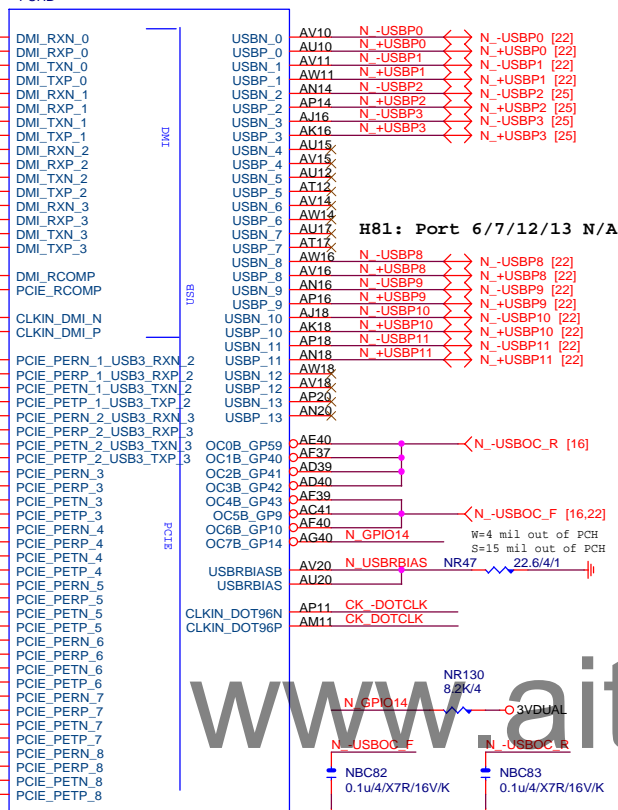
[19] PI_PCIEI1_IN  >
[19] PI_PCIEI1_IP  >
[19] PI_PCIEI1_ON  >
[19] PI_PCIEI1_OP  >

```

PCIEX1:16/5/5/5/16 (breakout min 8/4/4/4/8)

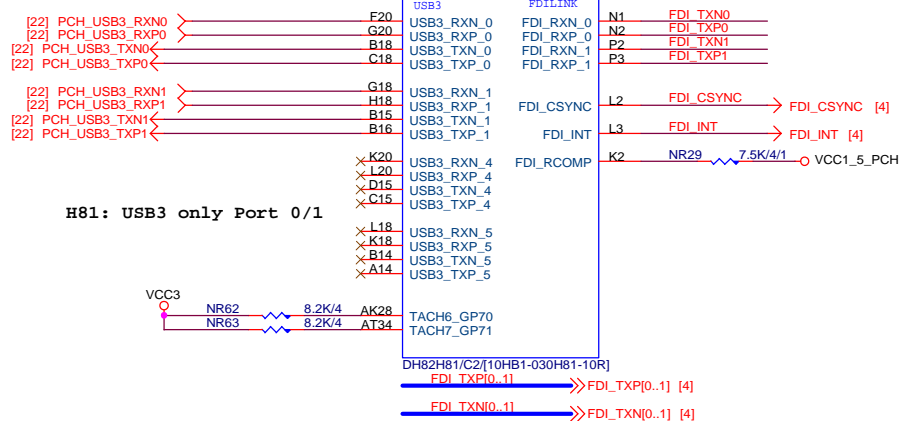


PCHB



DH82H81/C2/I10HB1-030H81-10R]

(5)



VCC3

NR62 8.2K/4 AK28

NR63 8.2K/4 AT34

TACH6_GP70

TACH7_GP71

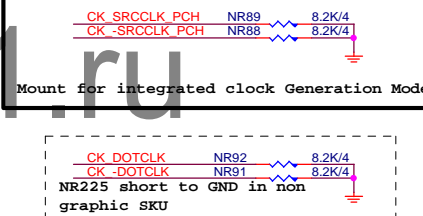
DH82H81/C2/[10HB1-030H81-10R]

FDI_TXP[0..1] >> FDI_TXP[0..1] [4]

FDI TXN[0..1] >> FDI TXN[0..1] [4]

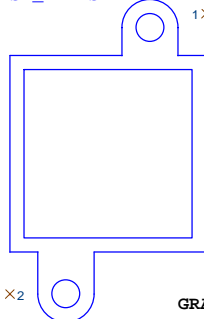
Front Panel < 6000 MILS

316



Page 10 of 10

SB HEATSIN



GRAY HS

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

□

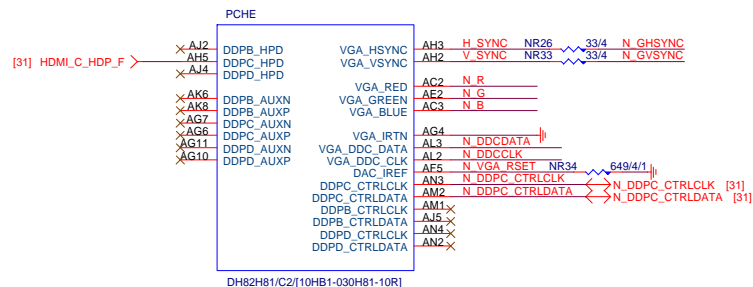
OC[7:4]# for Device 26 (ports 8-13)

USB OC#	Configure
OC0#	USB30_HDMI
OC1#	R_USB
OC2#	N/A
OC3#	N/A
OC4#	F_USB1
OC5#	F_USB2
OC6#	N/A
OC7#	Not Use

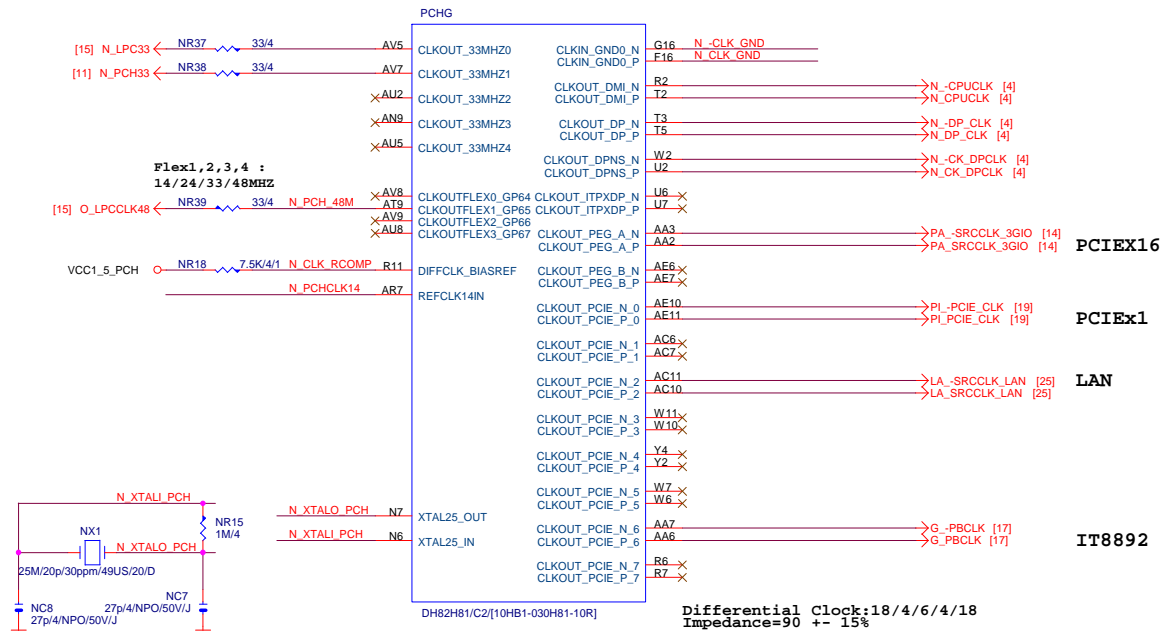
Gigabyte Technology

Title				PCH FDI,DMI,USB ,PCIE,NVRAM			
Size	Document Number	GA-H81M-S2PH				Rev	
Custom						1.01	
Date: Monday, July 15, 2013		Sheet 9		of 31			

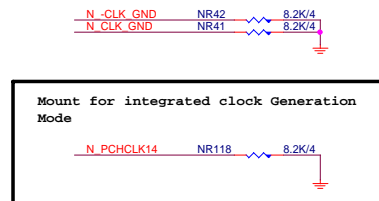
PCH (E)



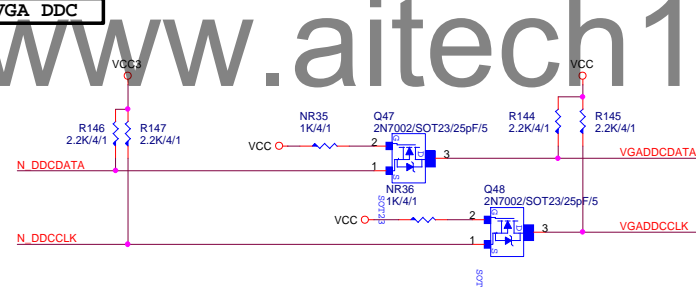
PCH (G)



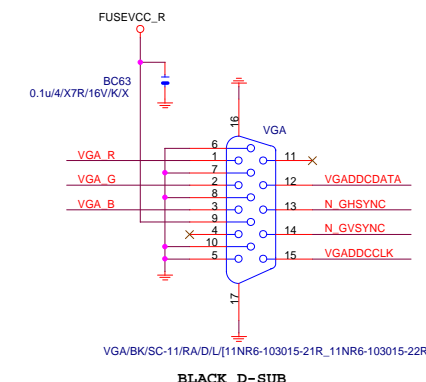
PCH CLK PD



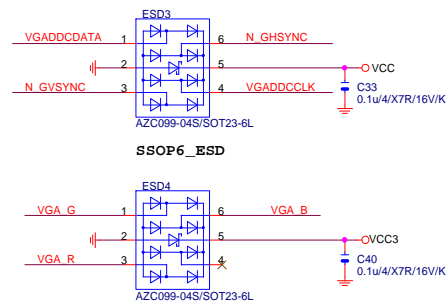
VGA DDC



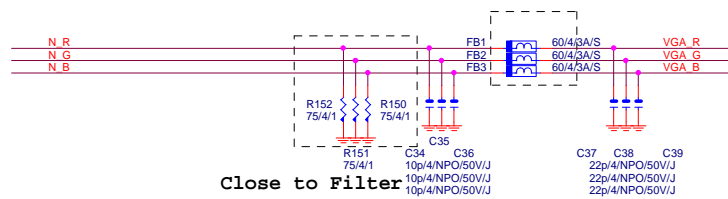
VGA CONNECTOR



VGA ESD



VGA DDC

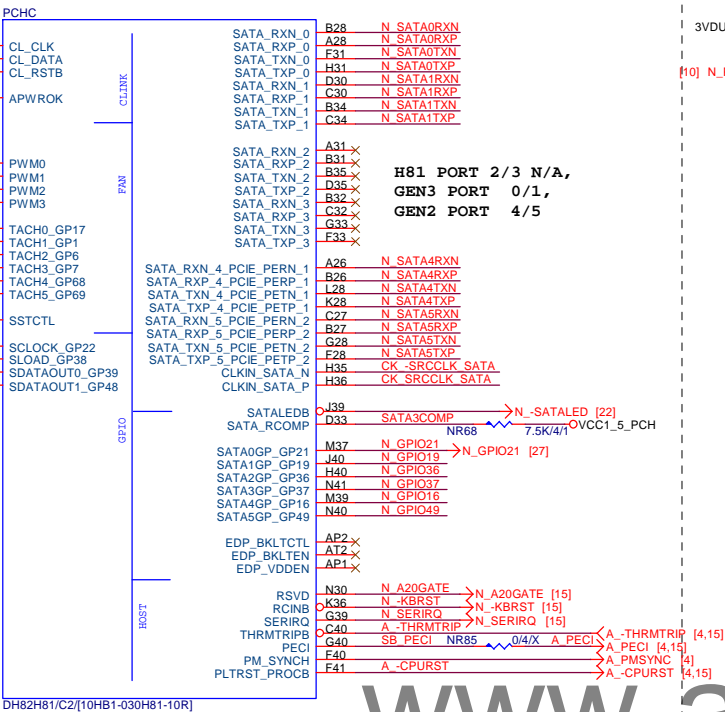


Gigabyte Technology

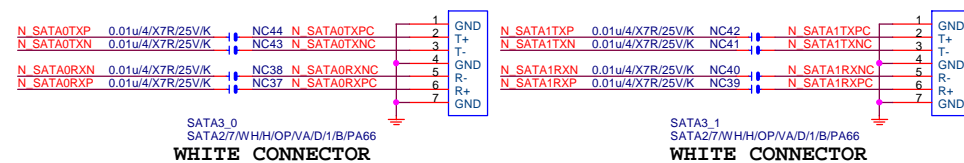
Title			
PCH DISPLAY,CLK BUFFER			
GA-H81M-S2PH			
Size	Document Number	Rev	
Custom		1.01	
Date:	Monday, July 15, 2013	Sheet	10 of 31

(C)

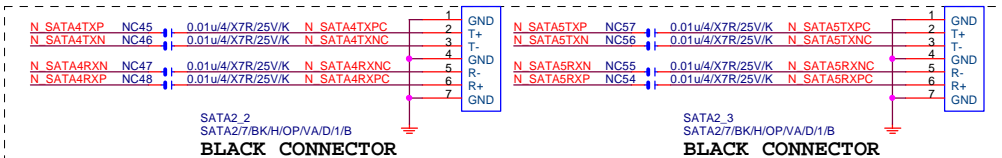
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)
Impedance=90 +- 17.5%



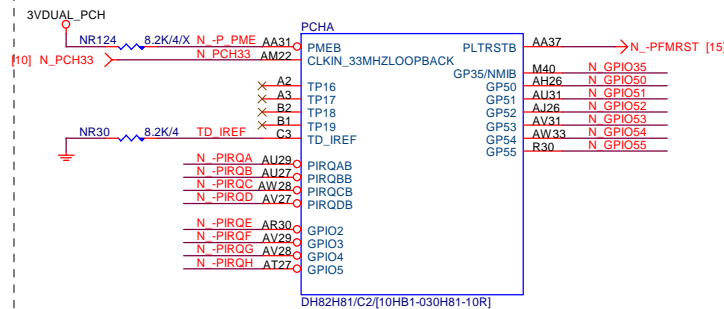
SATA CONNECTOR



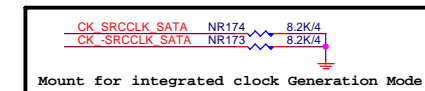
```
** Z87/H87 Port 4&5 SATA3.0
** B85 Port 4&5 SATA2.0
```



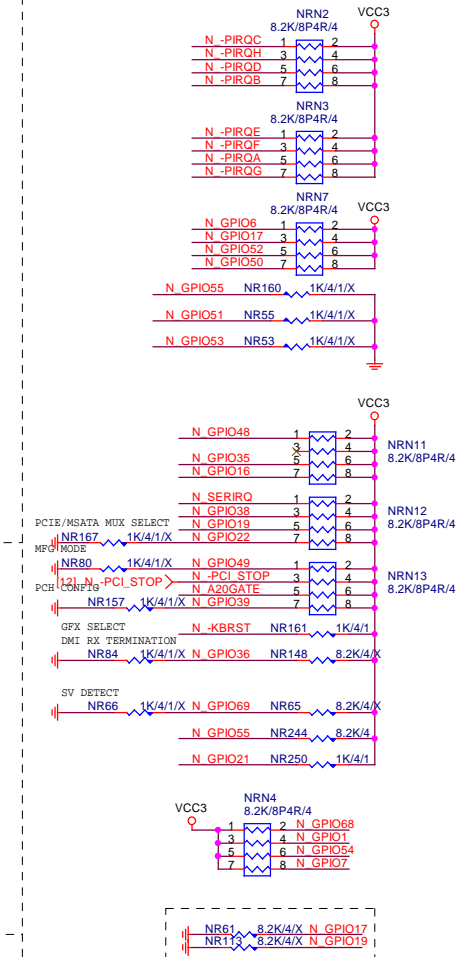
(A)



PCH CLK PD

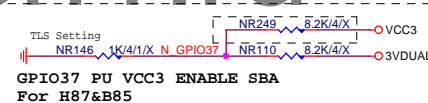


PCH	PU/PD
-----	-------

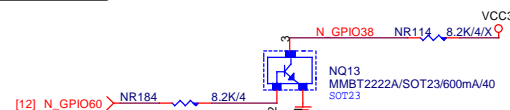


ME PWROK

H81	N/A
-----	-----



GPIO38 Ctrl



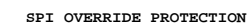
Gigabyte Technology

Title			
PCH HOST , SATA, PCI			
Size	Document Number		Rev
Custom	GA-H81M-S2PH		1.0
Date:	Monday, July 15, 2013	Sheet	11 of 31

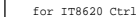
(D)



ACZ SDOUT



PCH DPWROK



PCH	PU/PD
-----	-------



HSW_STRAP13



32.768KHZ

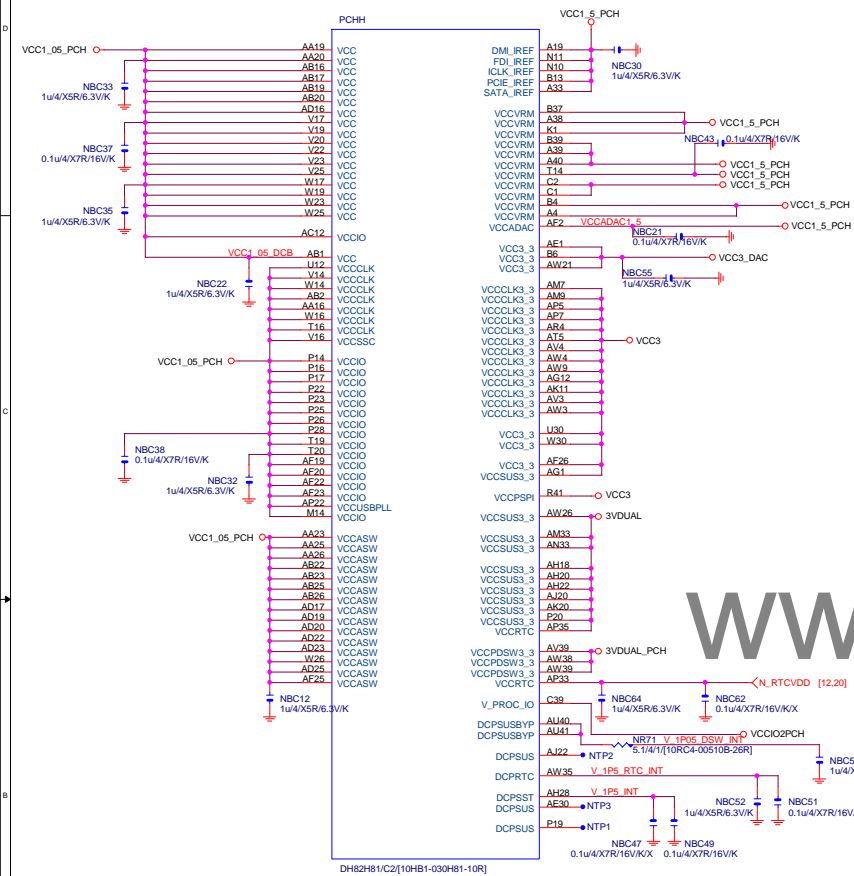
CLR_CMOS



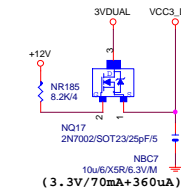
Gigabyte Technology

Title				PCH GPIO , CTRL , AUDIO			
Size	Document Number			GA-H81M-S2PH			Rev
Custom							1.0
Date:	Monday, July 15, 2013			Sheet	12	of	31

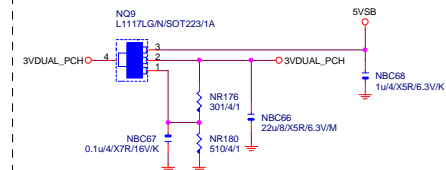
PCH (H)



VCC3_DAC



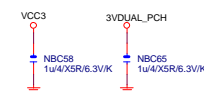
3VDUAL_PCH



SHT PWR

M3 POWER

CAP



(3.3V) (X6)

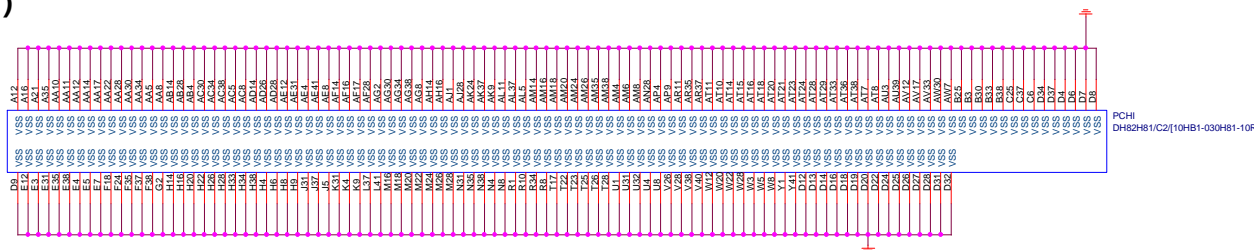
(1.05V) (x5)

(1.05V)(x6)

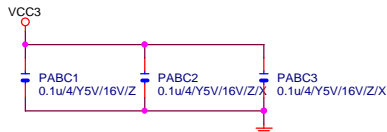
$$(1.05V)(x_2) - (3.3V)(x_2)$$

(1.05V) (x10)

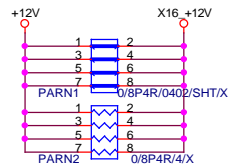
PCH (I)



PCIEX16 CAP



PCIEX16 PROTECT SHT

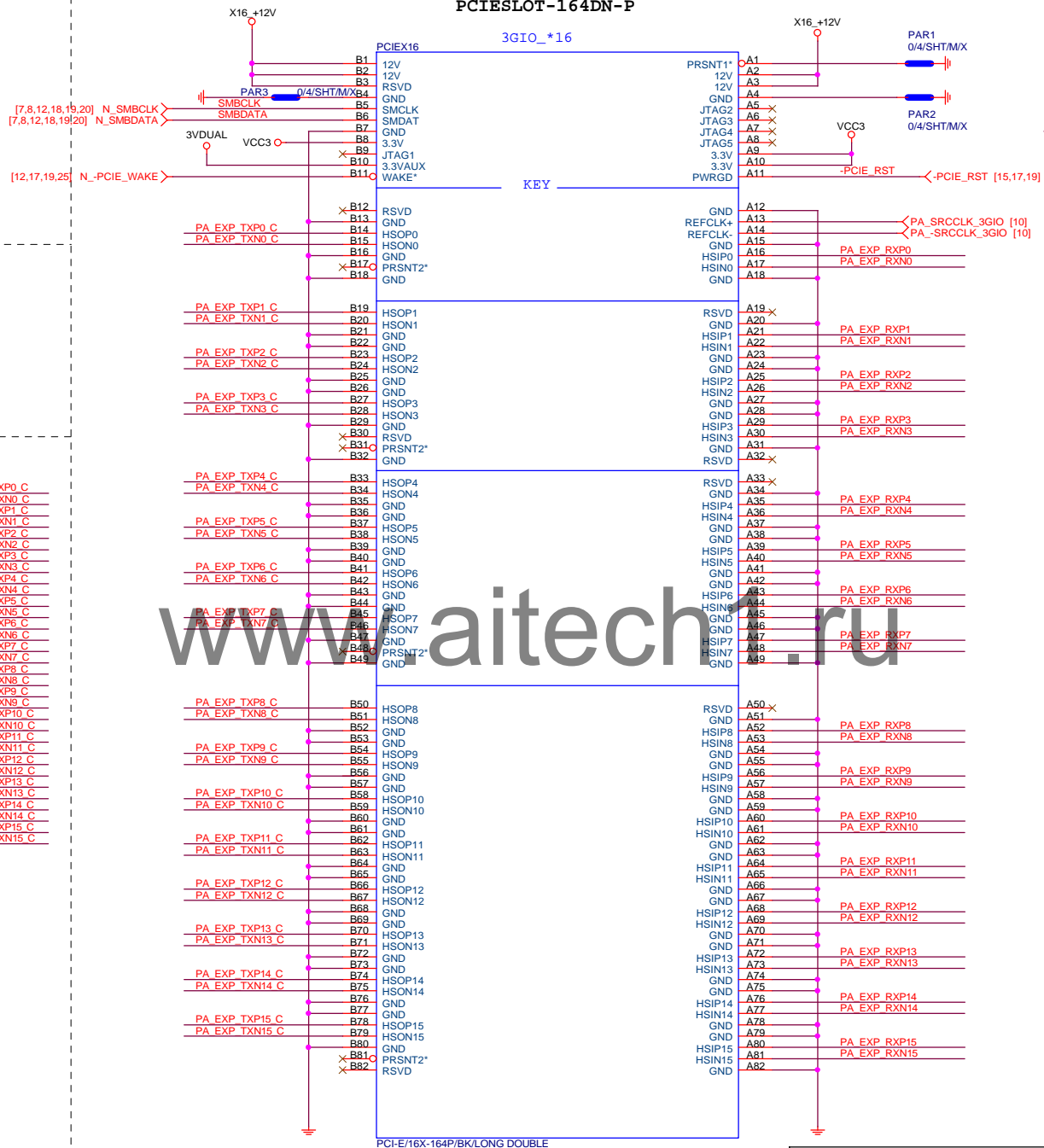


PCIEX16 AC CAP

PA EXP TXP0	PAC5	0.22u/4/X5R/6.3V/K	PA EXP TXP0 C
PA EXP TXN0	PAC4	0.22u/4/X5R/6.3V/K	PA EXP TXN0 C
PA EXP TXP1	PAC6	0.22u/4/X5R/6.3V/K	PA EXP TXP1 C
PA EXP TXN1	PAC7	0.22u/4/X5R/6.3V/K	PA EXP TXN1 C
PA EXP TXP2	PAC8	0.22u/4/X5R/6.3V/K	PA EXP TXP2 C
PA EXP TXN2	PAC9	0.22u/4/X5R/6.3V/K	PA EXP TXN2 C
PA EXP TXP3	PAC10	0.22u/4/X5R/6.3V/K	PA EXP TXP3 C
PA EXP TXN3	PAC11	0.22u/4/X5R/6.3V/K	PA EXP TXN3 C
PA EXP TXP4	PAC12	0.22u/4/X5R/6.3V/K	PA EXP TXP4 C
PA EXP TXN4	PAC13	0.22u/4/X5R/6.3V/K	PA EXP TXN4 C
PA EXP TXP5	PAC14	0.22u/4/X5R/6.3V/K	PA EXP TXP5 C
PA EXP TXN5	PAC15	0.22u/4/X5R/6.3V/K	PA EXP TXN5 C
PA EXP TXP6	PAC16	0.22u/4/X5R/6.3V/K	PA EXP TXP6 C
PA EXP TXN6	PAC17	0.22u/4/X5R/6.3V/K	PA EXP TXN6 C
PA EXP TXP7	PAC19	0.22u/4/X5R/6.3V/K	PA EXP TXP7 C
PA EXP TXN7	PAC18	0.22u/4/X5R/6.3V/K	PA EXP TXN7 C
PA EXP TXP8	PAC20	0.22u/4/X5R/6.3V/K	PA EXP TXP8 C
PA EXP TXN8	PAC21	0.22u/4/X5R/6.3V/K	PA EXP TXN8 C
PA EXP TXP9	PAC22	0.22u/4/X5R/6.3V/K	PA EXP TXP9 C
PA EXP TXN9	PAC23	0.22u/4/X5R/6.3V/K	PA EXP TXN9 C
PA EXP TXP10	PAC24	0.22u/4/X5R/6.3V/K	PA EXP TXP10 C
PA EXP TXN10	PAC25	0.22u/4/X5R/6.3V/K	PA EXP TXN10 C
PA EXP TXP11	PAC26	0.22u/4/X5R/6.3V/K	PA EXP TXP11 C
PA EXP TXN11	PAC27	0.22u/4/X5R/6.3V/K	PA EXP TXN11 C
PA EXP TXP12	PAC28	0.22u/4/X5R/6.3V/K	PA EXP TXP12 C
PA EXP TXN12	PAC29	0.22u/4/X5R/6.3V/K	PA EXP TXN12 C
PA EXP TXP13	PAC30	0.22u/4/X5R/6.3V/K	PA EXP TXP13 C
PA EXP TXN13	PAC31	0.22u/4/X5R/6.3V/K	PA EXP TXN13 C
PA EXP TXP14	PAC32	0.22u/4/X5R/6.3V/K	PA EXP TXP14 C
PA EXP TXN14	PAC33	0.22u/4/X5R/6.3V/K	PA EXP TXN14 C
PA EXP TXP15	PAC34	0.22u/4/X5R/6.3V/K	PA EXP TXP15 C
PA EXP TXN15	PAC35	0.22u/4/X5R/6.3V/K	PA EXP TXN15 C

PA EXP RXP0[0..15] >>> PA_EXP_RXP[0..15] [4]
PA EXP RXN0[0..15] >>> PA_EXP_RXN[0..15] [4]
PA EXP TXP0[0..15] >>> PA_EXP_TXP[0..15] [4]
PA EXP TXN0[0..15] >>> PA_EXP_TXN[0..15] [4]

PCIEX16 SLOT

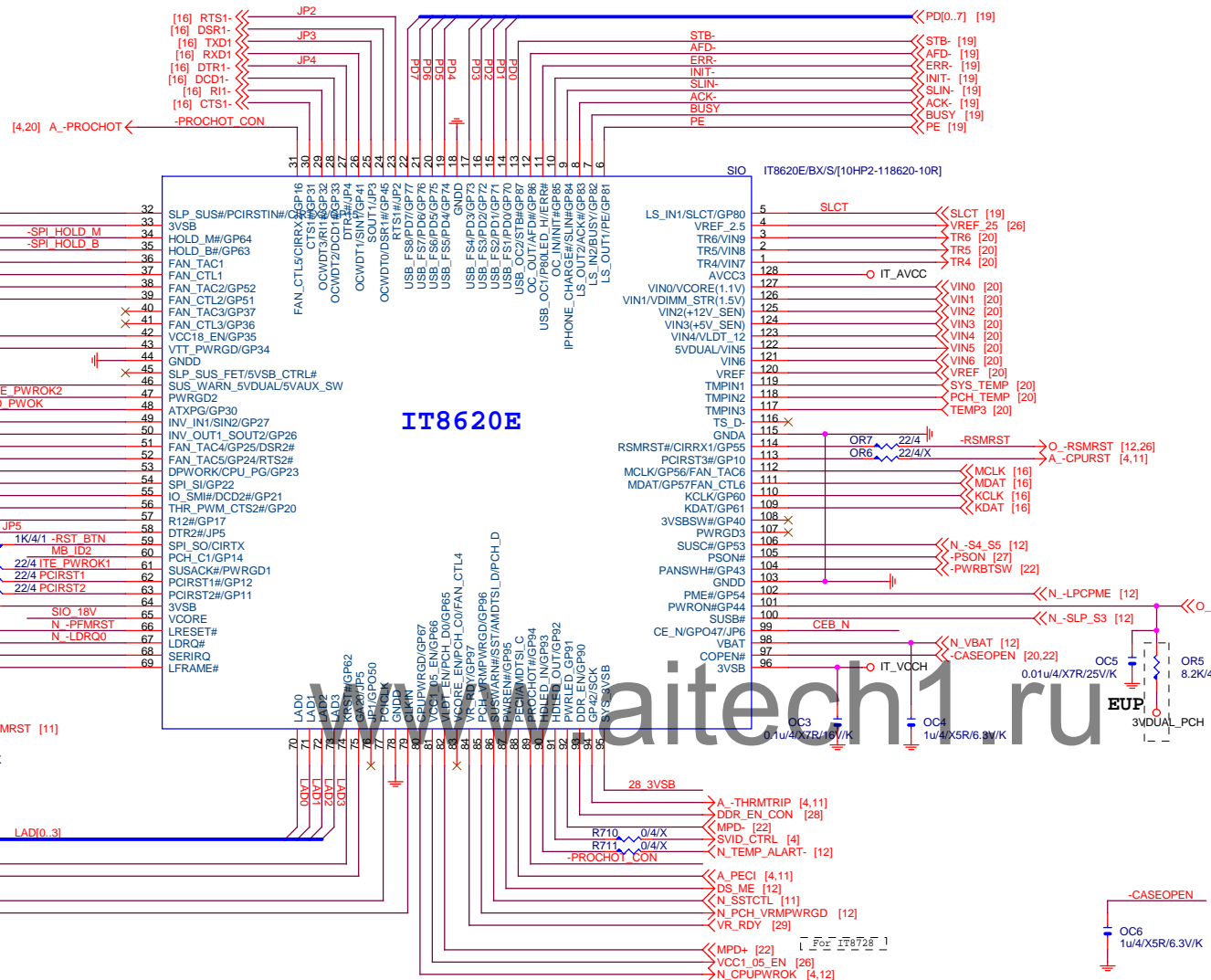


BLACK CONNECTOR

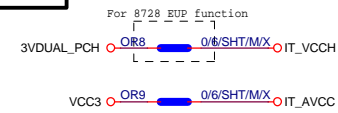
Gigabyte Technology

Title			PCI EXPRESS * 16		
Size			GA-H81M-S2PH		
Custom			Rev 1.01		
Date: Monday, July 15, 2013			Sheet 14 of 31		

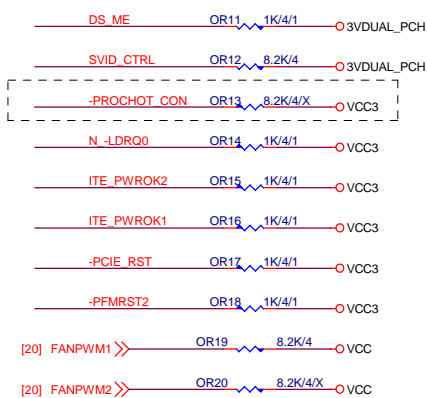
SIO IT8620E



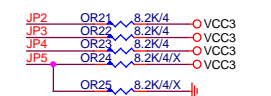
PWR SHT



SIO PU




SIO STRAP



IT8620
PULL DOWN OVP REMOVE

EUP control by PCH

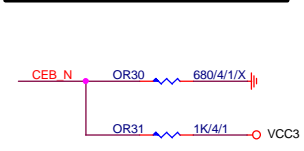
3VDUAL 

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

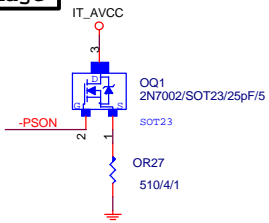
IT8620 NOTE

	IT8728
PIN121	VCORE_EN/PC_H_C0
PIN120	VLDT_EN/PC_H_D0
PIN19	ATXPG
PIN31	PCH_C1
PIN53	SST/AMDTST1_D/MTRB#/PC_H1
PIN55	PECI/AMDTST1_C/DRV#
PIN66	SYS_3VSB
PIN70	GP47
PIN95	VIN2/(VCC5)
PIN96	VIN1/(VCC12)
PIN97	VIN1/VDIMM_STR(1.5V)
PIN98	VING/VCORE(1.1V)/NC

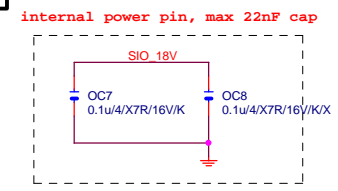
DUAL BIOS OPT STRAP



Power leakage

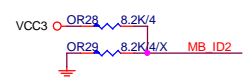


SIO_18V

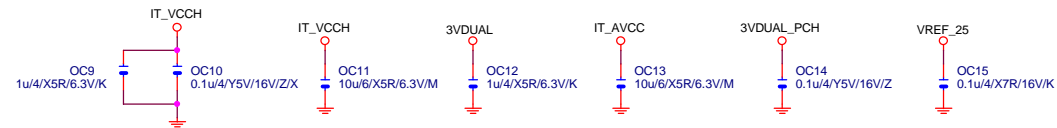


FOR LOW TEMP POWER ON INTO TEST MODE ISSUE

MB ID

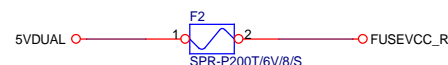
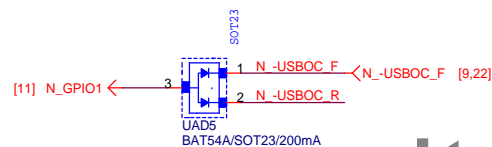
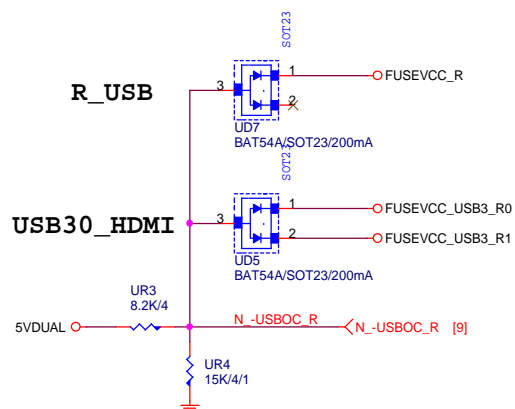
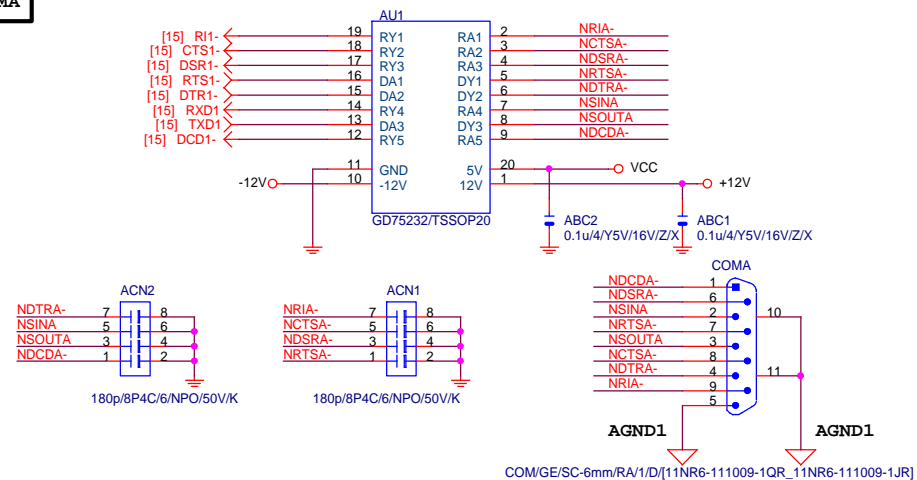
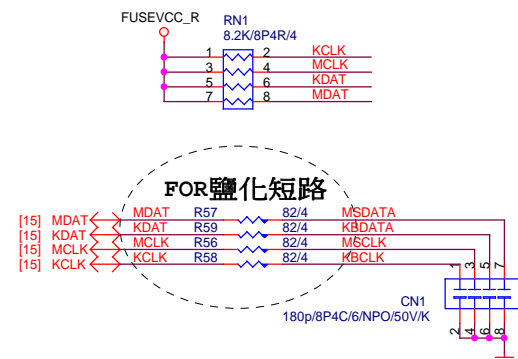
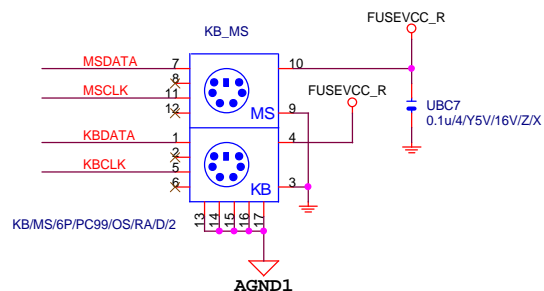


SIO CAP

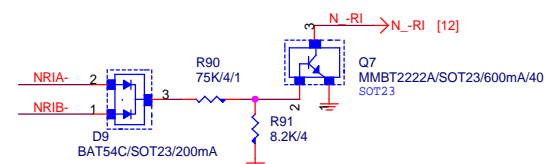
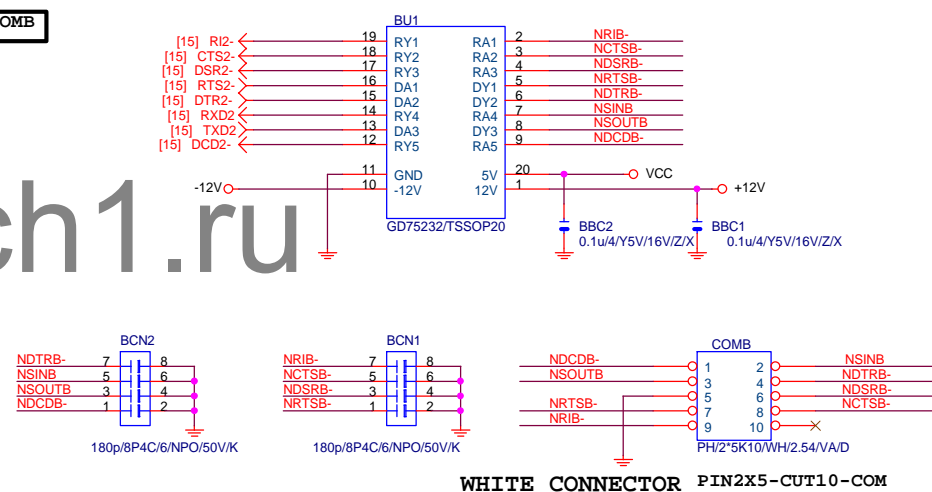


Gigabyte Technology

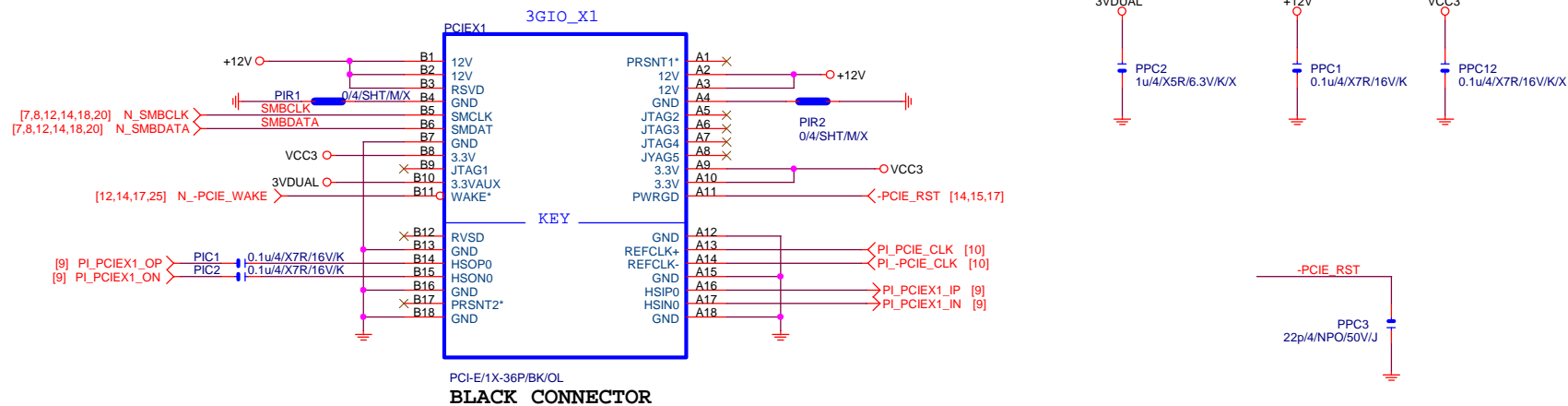
Title			
ITE 8620 LPC IO			
Size	Document Number		Rev
Custom	GA-H81M-S2PH		1.01
Date:	Monday, July 15, 2013	Sheet	15 of 31



Close to connector
KB MS USB 2-Port 2.0A

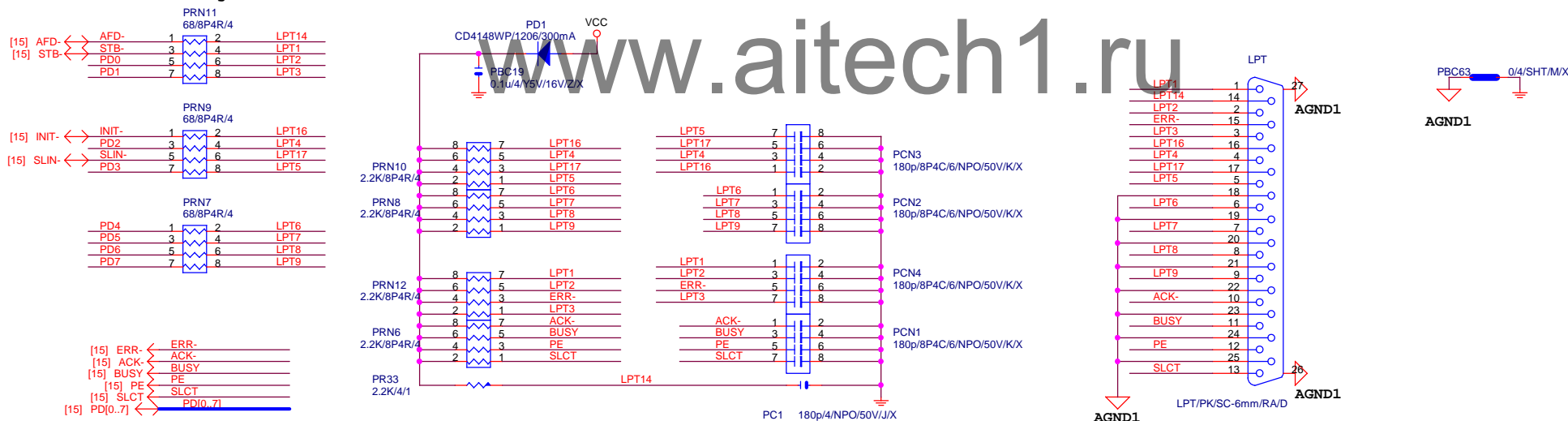


PCIEX1 SLOT



LPT PORT

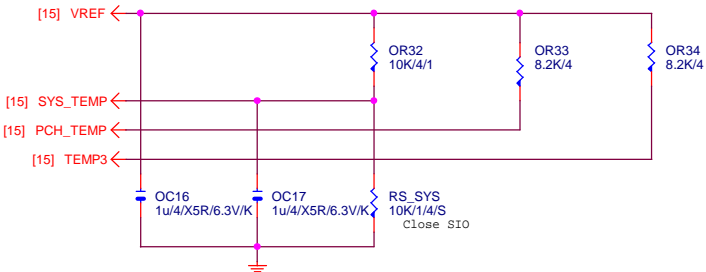
【技術通報R&D技術通報151】
33ohm Change to 68ohm



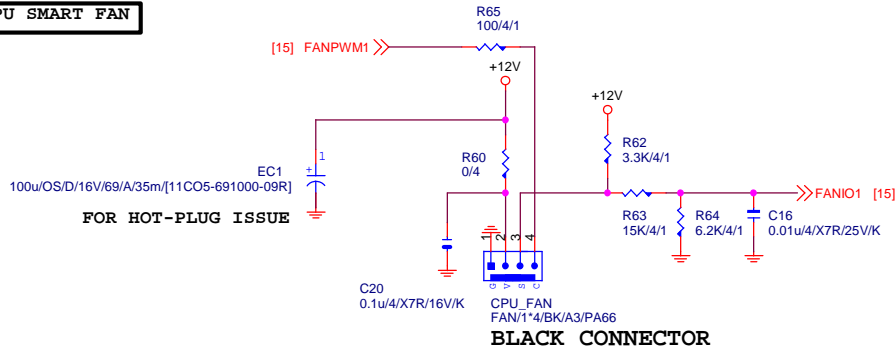
Gigabyte Technology

Title			
LPT			
Size B	Document Number	Rev	
	GA-H81M-S2PH	1.01	
Date:	Monday, July 15, 2013	Sheet	19 of 31

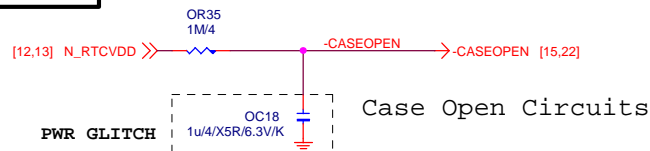
TEMP H/W MONITOR



CPU SMART FAN

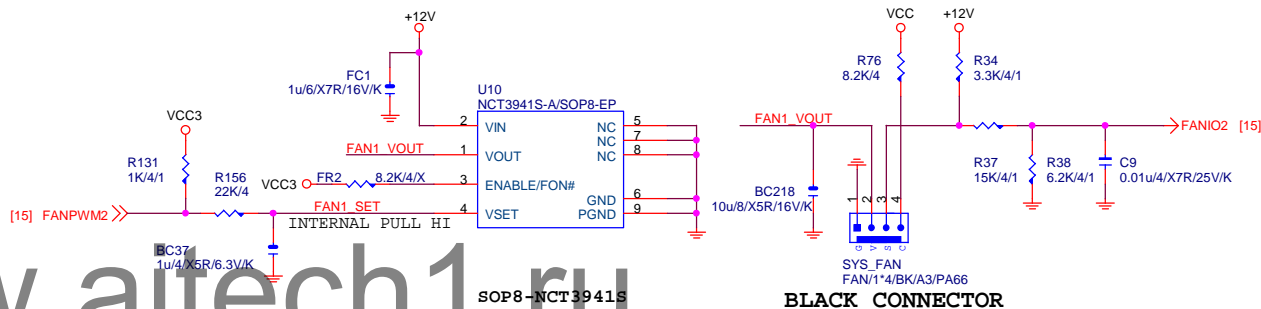


CASE OPEN



SYS SMART FAN

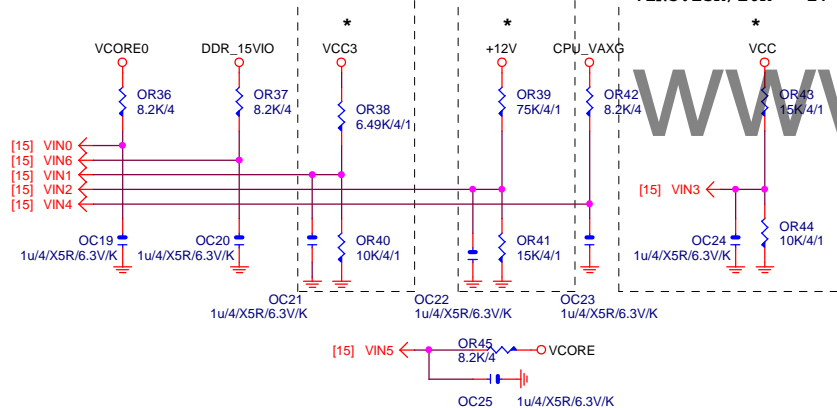
Linear SYS_FAN



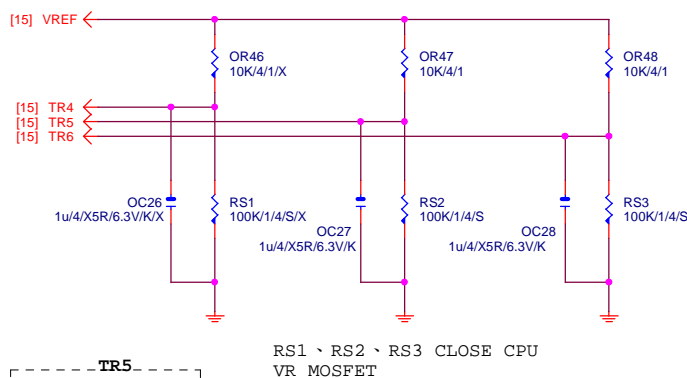
VOLTAGE-- H/W MONITOR

$$VIN2: 75K/15K = 2V$$

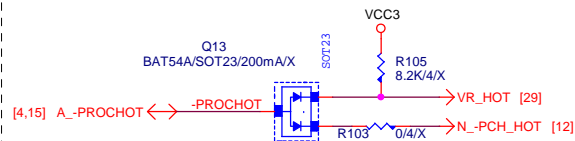
$$VIN3: 15K/10K = 2V$$



THERMISTOR MONITOR



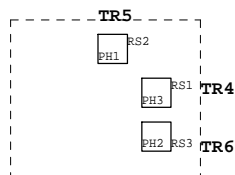
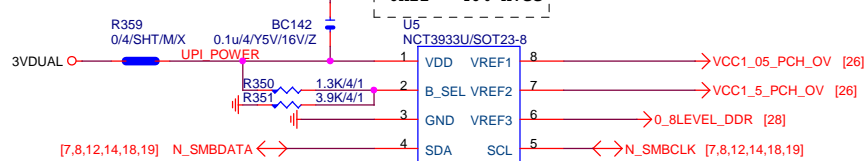
-PROHOT



OV NCT3933

接pwm feedback pin

$$0x22 = 40\% \times VCC$$



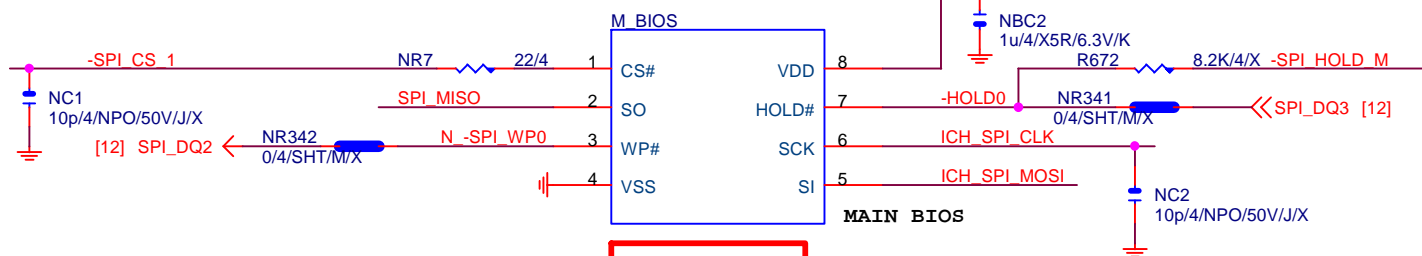
Gigabyte Technology

HWM,FAN CTRL_OV

GA-H81M-S2PH

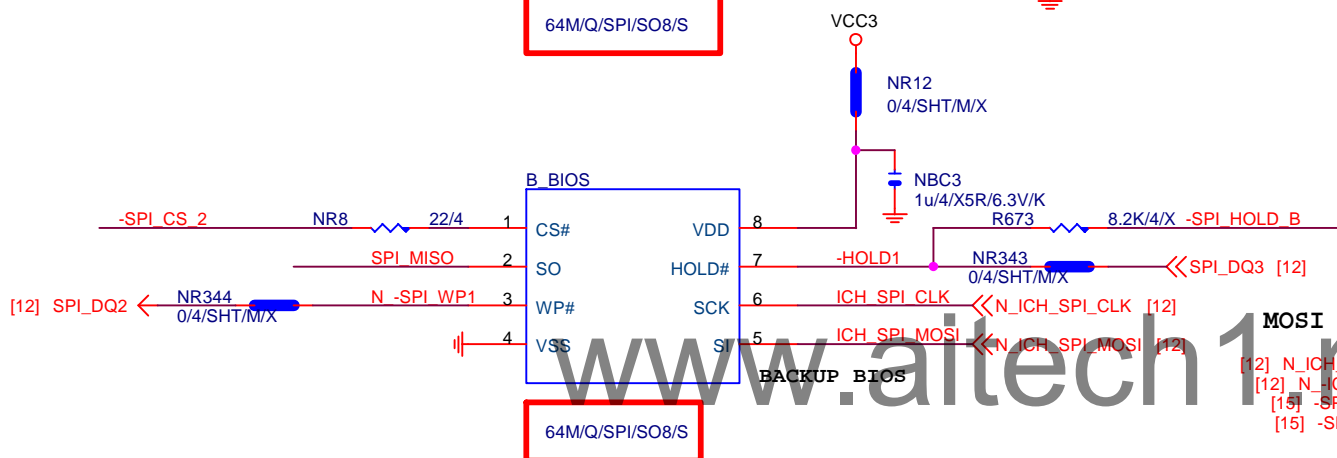
Rev 1.01

Date: Monday, July 15, 2013 Sheet 20 of 31

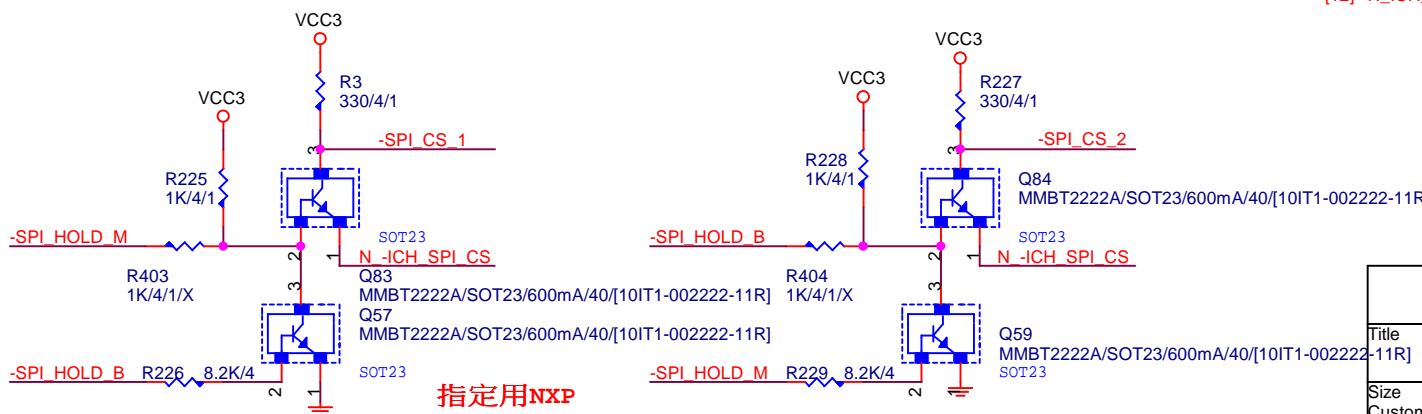
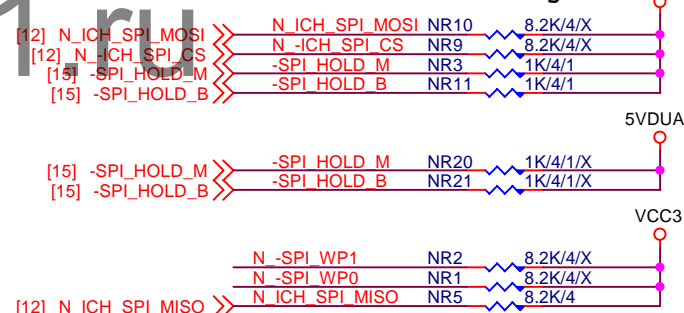


BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

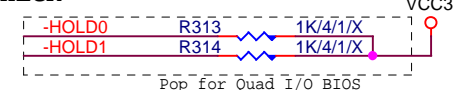
1 means floating
0 means PD 1K



MOSI For DMI RX Termination Voltage



CHECK



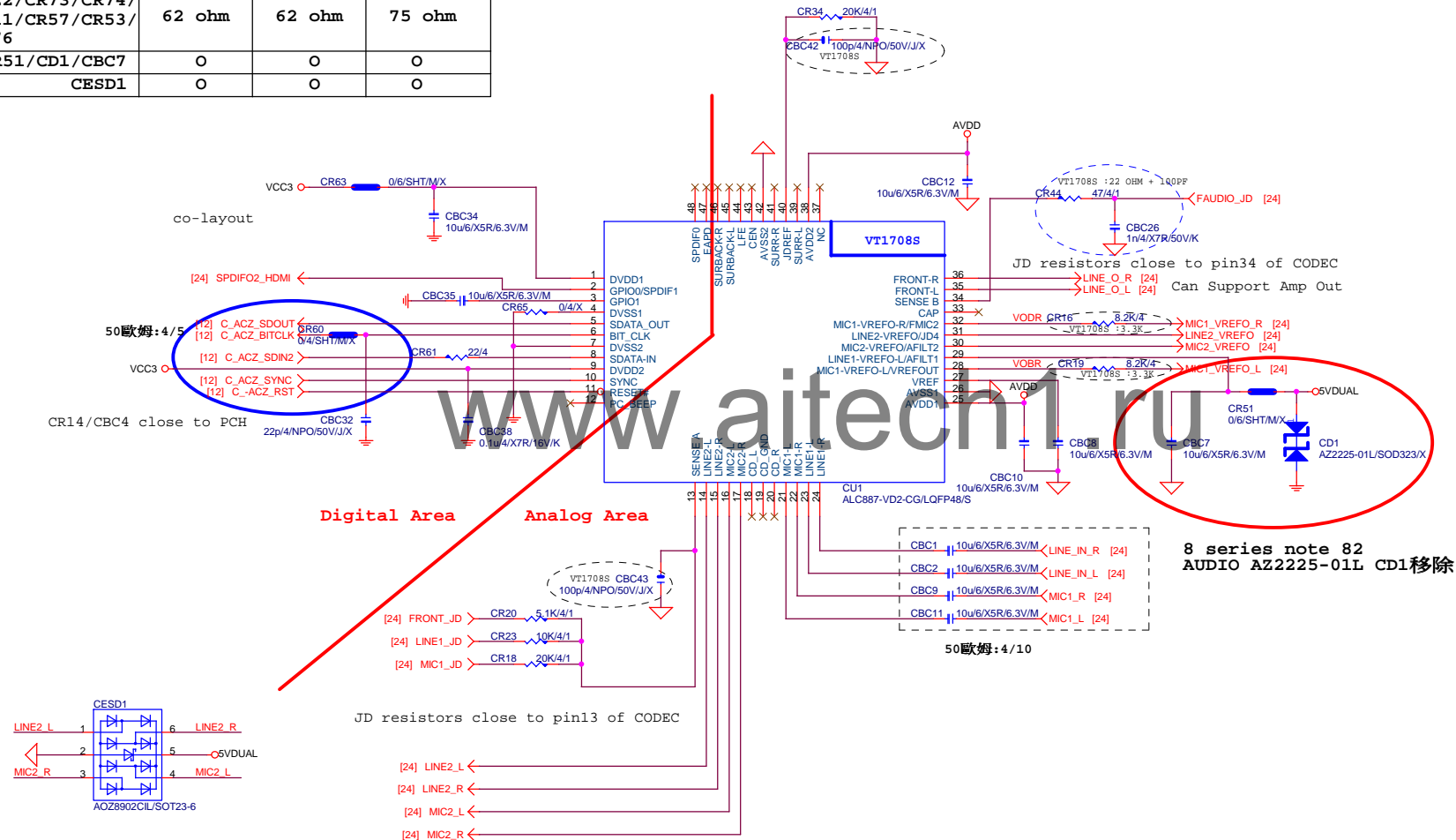
Gigabyte Technology

DUAL BIOS

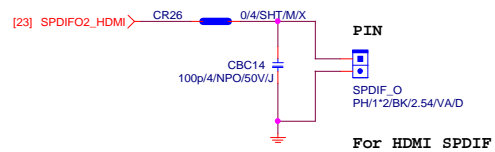
GA-H81M-S2PH

Title	Custom	Document Number	Rev
Date	Monday, July 15, 2013	Sheet	21 of 31
			1.01

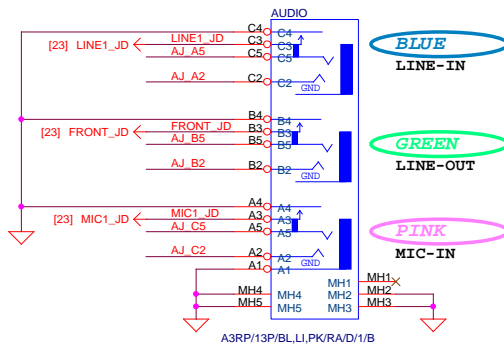
	ALC892	ALC887-VD2	VT1708S-CE
CR44/CBC26	47ohm+1nF	47ohm+1nF	22ohm+100P
CBC42/CBC43	X	X	100P/4
CR6/CR7/CR58/CR54/ CR67/CR68/CR69/CR70	22K/4	22K/4	10K/4/1
CR5/CR8/CR1/CR14/ CR17/CR22/CR73/CR74/ CR13/CR11/CR57/CR53/ CR75/CR76	62 ohm	62 ohm	75 ohm
CR51/CD1/CBC7	O	O	O
CESD1	O	O	O



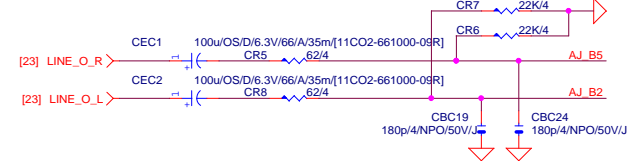
SPDIF_OUT



SPDIF_OUT



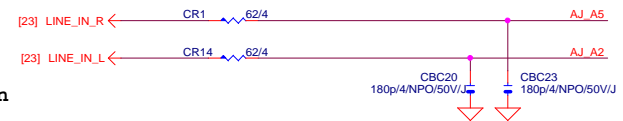
LINE-OUT



LINE-IN

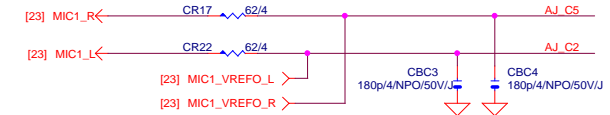
Verify MIC function
in LINE-in

Only reserved for ALC888

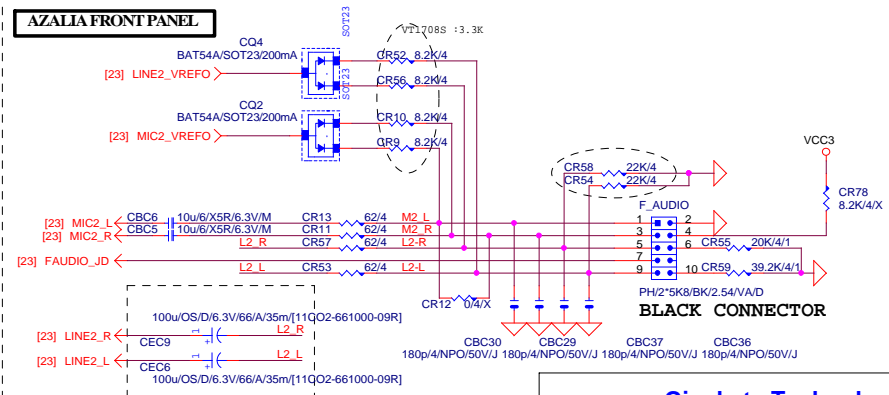


For 889A/888

MIC-IN



AZALIA FRONT PANEL

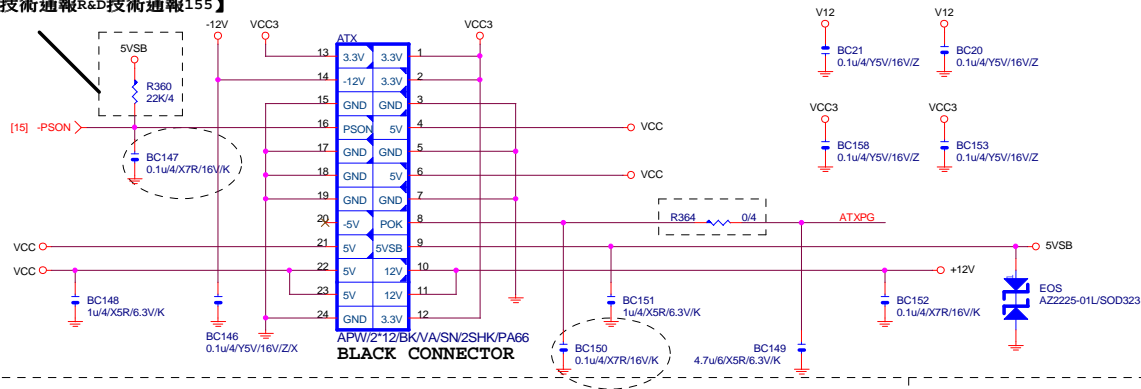


Gigabyte Technology

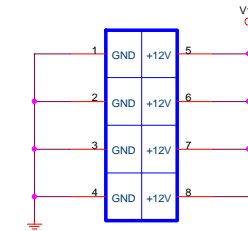
Title			
AUDIO JACK			
Size	Document Number	GA-H81M-S2PH	
Custom			Rev 1.01
Date:	Monday, July 15, 2013	Sheet	24 of 31

ATXX24 POWER CONNECTOR

【技術通報R&D技術通報155】



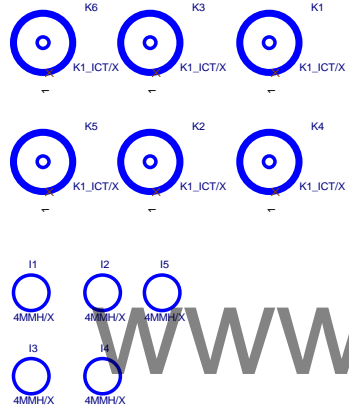
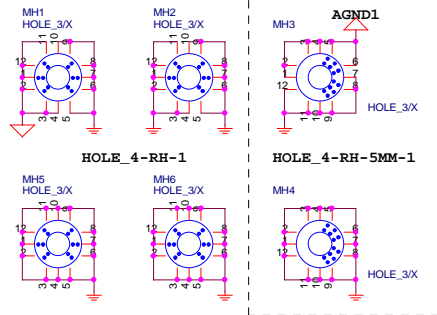
ATXX4 POWER CONNECTOR



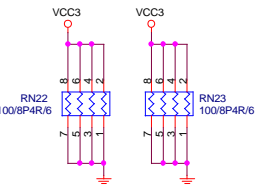
ATX_12V_2X4
APW/Z*4/BK/OC/P4.2/VA/SN/OH:Location ATX_12V_2X4

BLACK CONNECTOR

MB LOCATION

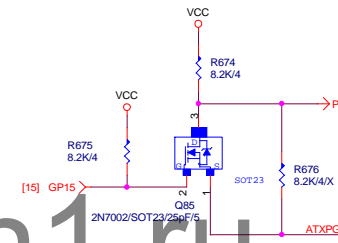


FIX PWR MINMUN LOAD



PWOK PATCH

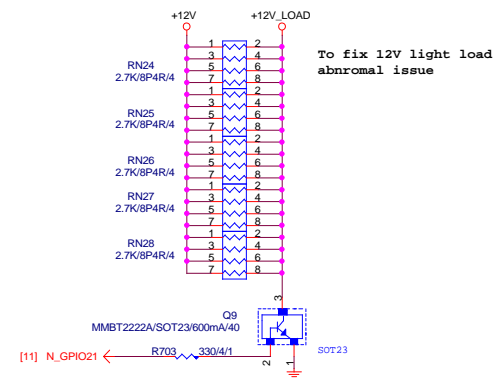
【技術通報R&D技術通報154】



CLK GEN

N/A

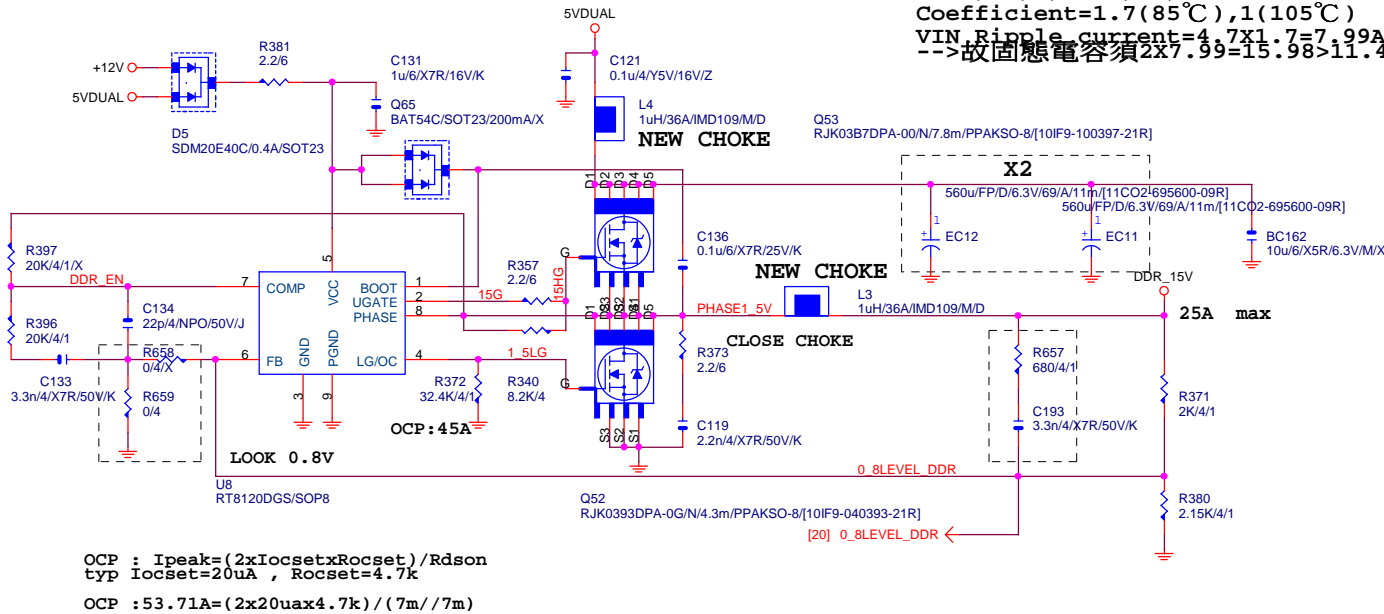
【技術通報R&D技術通報153】



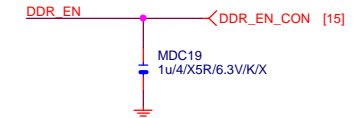
Gigabyte Technology

Title			ATX CONNECTOR
Size	Document Number	GA-H81M-S2PH	Rev
Custom			1.01
Date:	Monday, July 15, 2013	Sheet	27 of 31

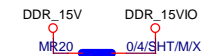
DDR15V



PWR SEQ



From DDR_15V source
 10 mils trace to SIO



VCC1_05_ME

Z81 N/A

VCC3_ME

H81 N/A

www.aitech1.ru

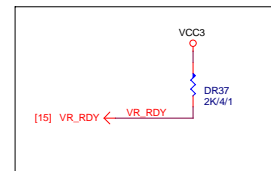
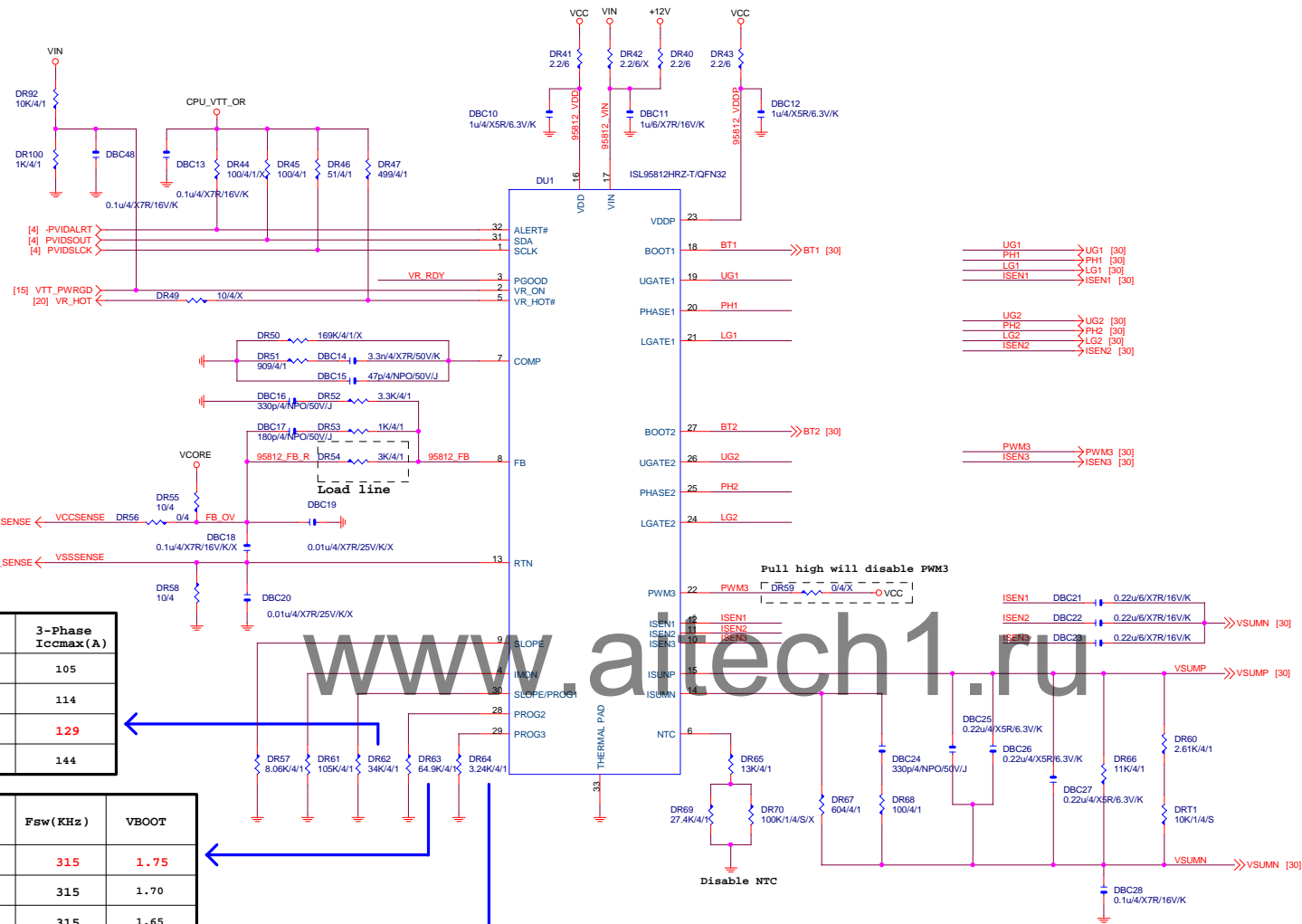
Gigabyte Technology

Title		
DDR & M3 POWER		
Size	Document Number	Rev
B	GA-H81M-S2PH	1.01
Date:	Monday, July 15, 2013	Sheet 28 of 31

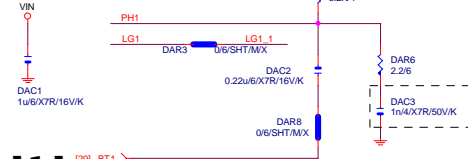
R_PROG1 (Kohm)	3-Phase Iccmax(A)
24.9	105
28.7	114
34.0	129
42.2	144

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

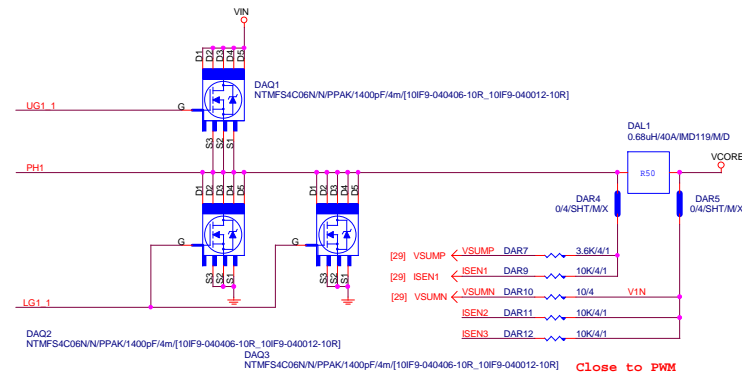
R_PROG3 (Kohm)	Fast Slew Rate (mV/us)
3.24	12
5.76	24
9.31	40
13.3	45



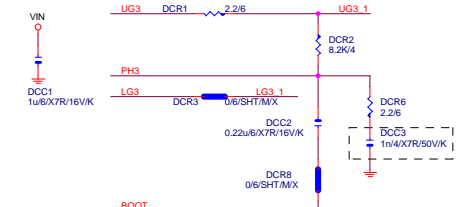
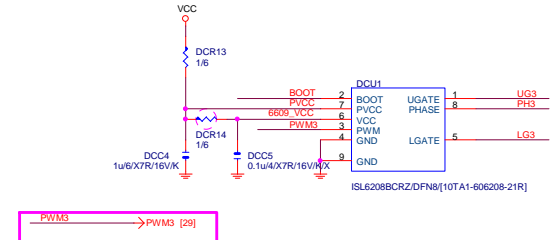
PHASE 1



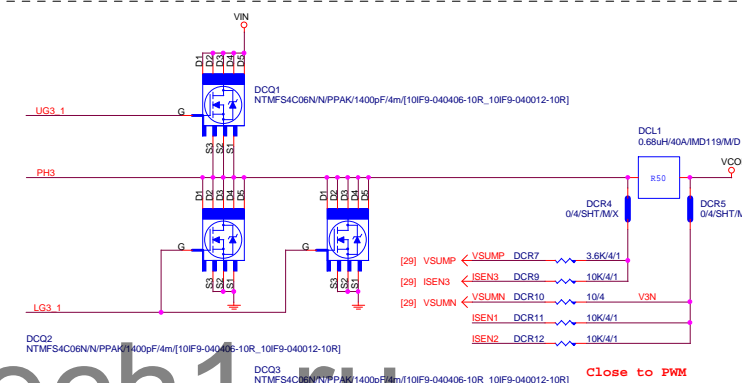
[1] [29] BT1



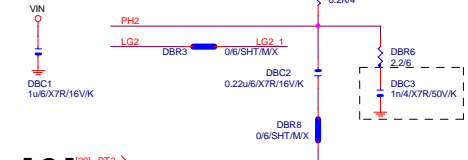
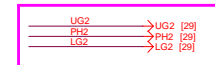
PHASE 3



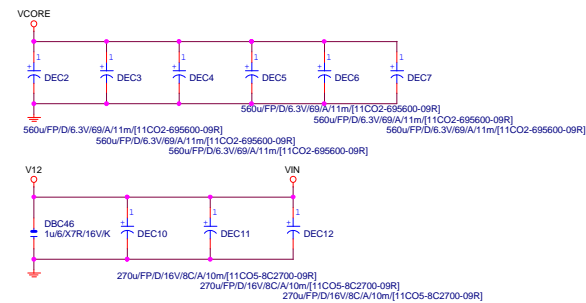
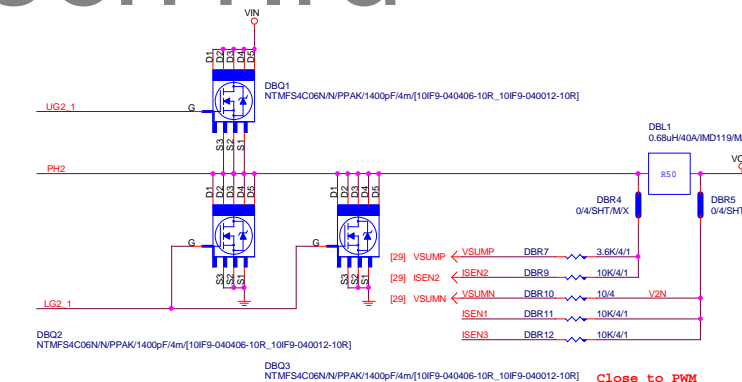
[3] [29] BT2



PHASE 2



[2] [29] BT2



Gigabyte Technology			
Title		CPU CORE VR-2	
Size	Document Number	GA-H81M-S2PH	
Custom			Rev 1.01
Date	Monday, July 15, 2013	Sheet	30 of 31

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

