

Model Name: GA-B85N PHOENIX Revision 1.1

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_USB30
17	HWM,FAN CTRL,OV,-PROCHOT
18	DUAL BIOS
19	FP,FUSB,SPK,SATALED
20	Realtek ALC898
21	REAR AUDIO JACK
22	USB DAC POWER, mini PCI-E
23	INTEL LAN I217V
24	DISCRETE POWER
25	ATX,CLK GEN
26	RT8120_DDR POWER,M3 POWER
27	VCORE ISL95820_1

SHEET TITLE

28	VCORE ISL95820_2
29	DVI-I
30	HDMI+USB2.0*2
31	mSATA, Mini-PCIe
32	Breathing LED

www.aitech1.ru

<b>Gigabyte Technology</b>		
Title		
Cover Sheet		
Size Custom	Document Number <b>GA-B85N-Phoenix</b>	Rev <b>1.1</b>
Date: Thursday, December 19, 2013	Sheet 1 of 32	

**Model Name: GA-B85N PHOENIX** *Revision 1.1*

### Component value change history

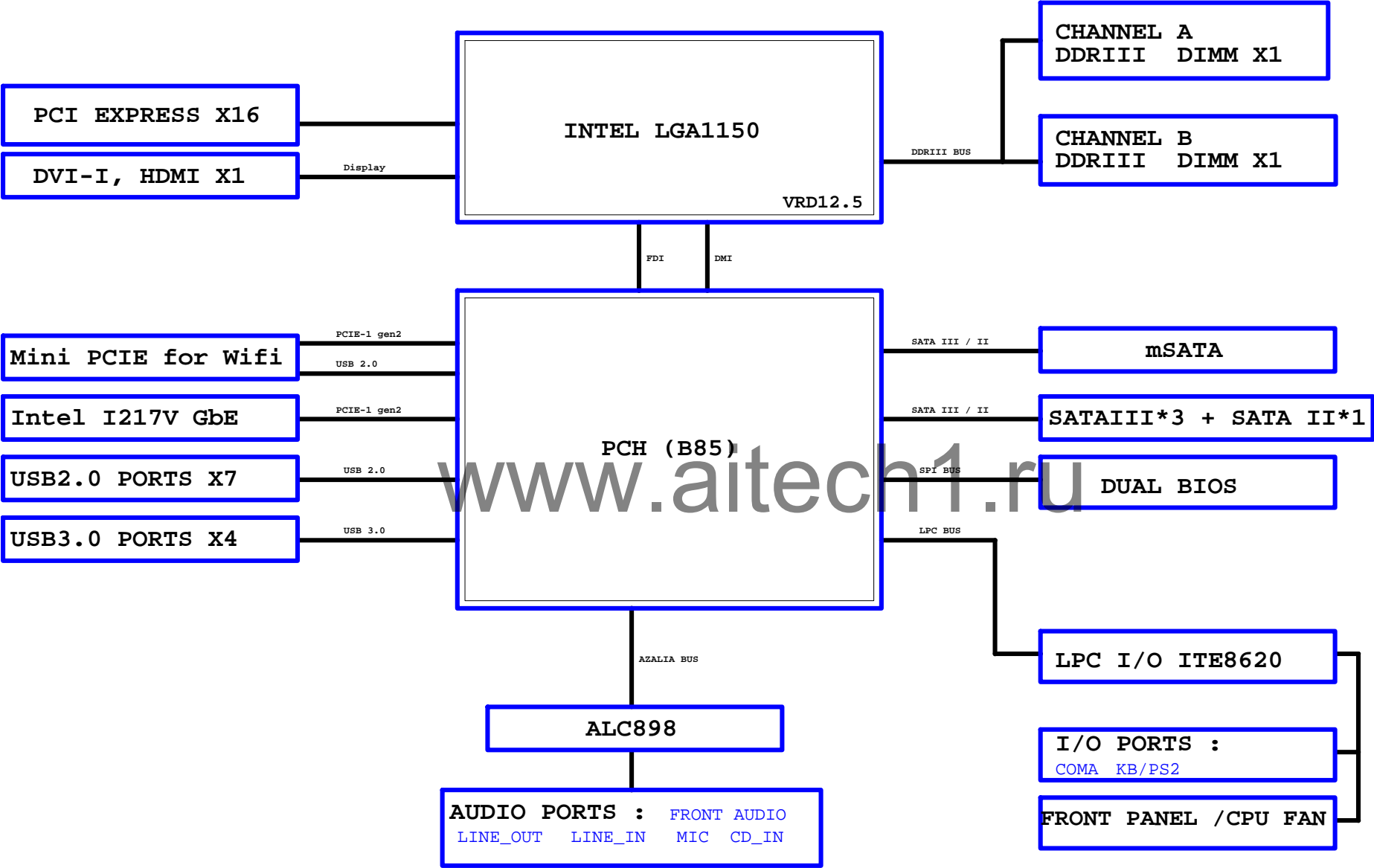
2013/07/02

[illegible]

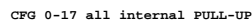
## Circuit or PCB layout change

[illegible]

BLOCK DIAGRAM



(E)

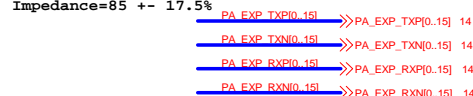


(D)



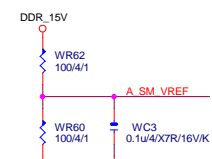
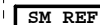
(C)

LGA1



-CPURST

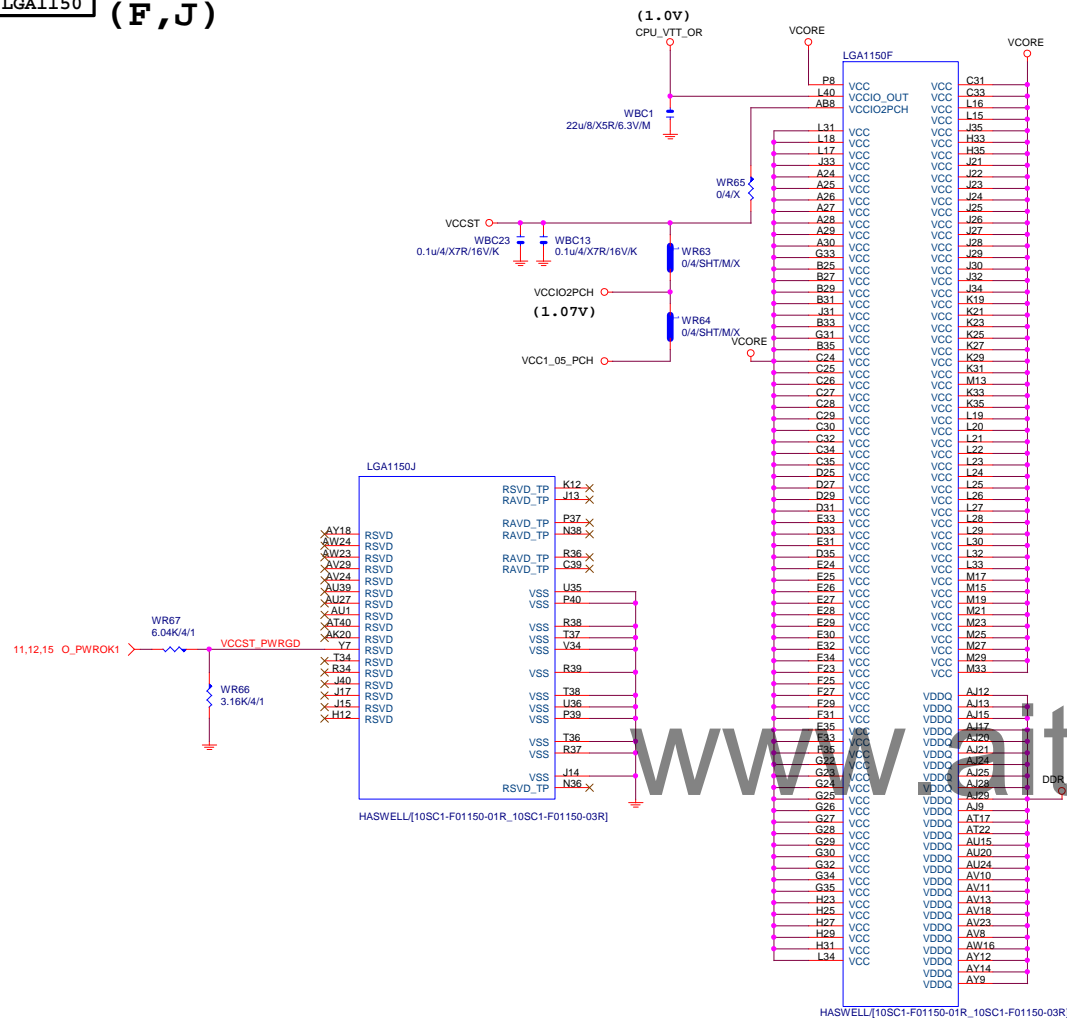
CPU	PU/PD
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100



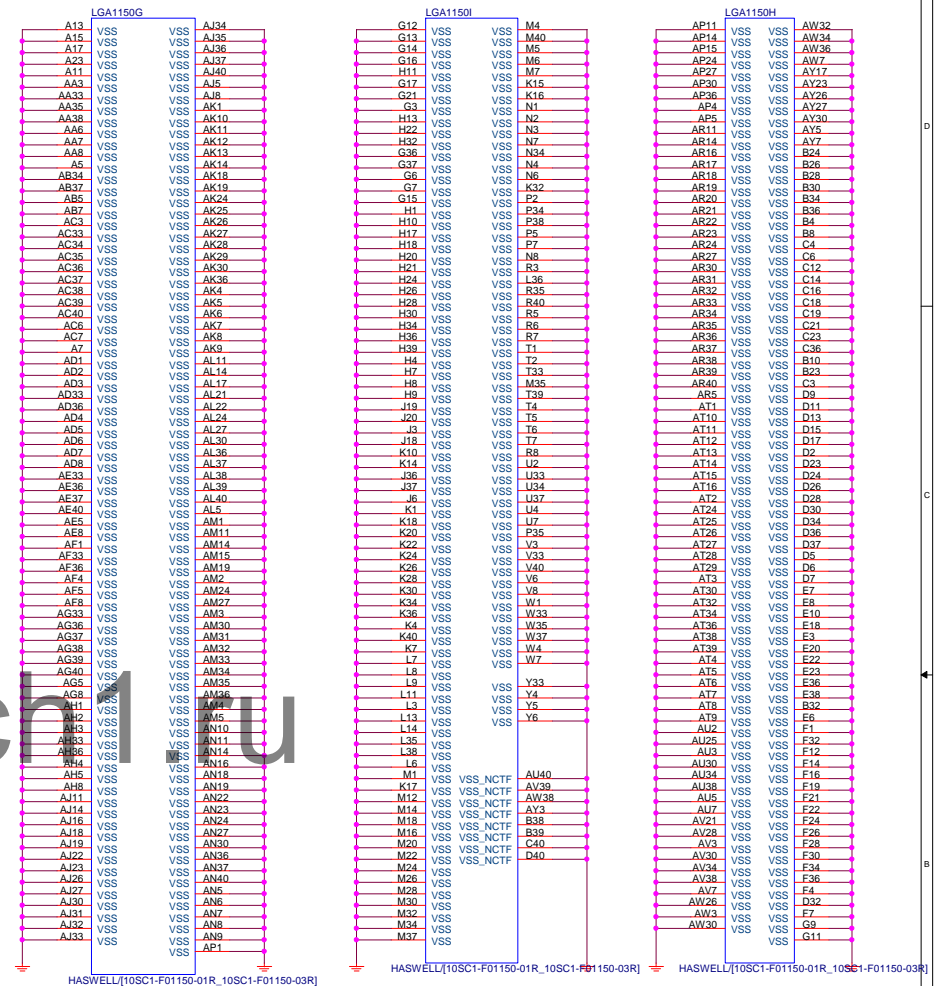
LGA1150A

MAAA0	AU13	DDR0_MA0	DDR0_DQ0	AD38	MDA0
MAAA1	AV16	DDR0_MA1	DDR0_DQ1	AD39	MDA1
MAAA2	AU16	DDR0_MA2	DDR0_DQ2	AF38	MDA2
MAAA3	AW17	DDR0_MA3	DDR0_DQ3	AF39	MDA3
MAAA4	AU17	DDR0_MA4	DDR0_DQ4	AD37	MDA4
MAAA5	AU18	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	AH40	MDA8
MAAA9	AT19	DDR0_MA9	DDR0_DQ9	AH39	MDA9
MAAA10	AW11	DDR0_MA10	DDR0_DQ10	AH38	MDA10
MAAA11	AV19	DDR0_MA11	DDR0_DQ11	AH37	MDA11
MAAA12	AU19	DDR0_MA12	DDR0_DQ12	AH36	MDA12
MAAA13	AY10	DDR0_MA13	DDR0_DQ13	AH35	MDA13
MAAA14	AT20	DDR0_MA14	DDR0_DQ14	AH34	MDA14
MAAA15	AU21	DDR0_MA15	DDR0_DQ15	AH33	MDA15
MODT_A0	AW10	DDR0_ODT0	DDR0_ODT1	AM39	MDA21
MODT_A1	AY8	DDR0_ODT1	DDR0_ODT2	AM38	MDA18
AW9	AW9	DDR0_ODT2	DDR0_ODT3	AM37	MDA19
AW8	AW8	DDR0_ODT3	DDR0_ODT4	AM36	MDA16
AW7	AW7	DDR0_ODT4	DDR0_ODT5	AM35	MDA17
AW6	AW6	DDR0_ODT5	DDR0_ODT6	AM34	MDA14
AW5	AW5	DDR0_ODT6	DDR0_ODT7	AM33	MDA15
AW4	AW4	DDR0_ODT7	DDR0_ODT8	AM32	MDA12
AW3	AW3	DDR0_ODT8	DDR0_ODT9	AM31	MDA13
AW2	AW2	DDR0_ODT9	DDR0_ODT10	AM30	MDA10
AW1	AW1	DDR0_ODT10	DDR0_ODT11	AM29	MDA11
AW0	AW0	DDR0_ODT11	DDR0_ODT12	AM28	MDA8
AW0	AW0	DDR0_ODT12	DDR0_ODT13	AM27	MDA9
AW0	AW0	DDR0_ODT13	DDR0_ODT14	AM26	MDA6
AW0	AW0	DDR0_ODT14	DDR0_ODT15	AM25	MDA7
AW0	AW0	DDR0_ODT15	DDR0_ODT16	AM24	MDA4
AW0	AW0	DDR0_ODT16	DDR0_ODT17	AM23	MDA5
AW0	AW0	DDR0_ODT17	DDR0_ODT18	AM22	MDA2
AW0	AW0	DDR0_ODT18	DDR0_ODT19	AM21	MDA3
AW0	AW0	DDR0_ODT19	DDR0_ODT20	AM20	MDA0
AW0	AW0	DDR0_ODT20	DDR0_ODT21	AM19	MDA1
AW0	AW0	DDR0_ODT21	DDR0_ODT22	AM18	MDA2
AW0	AW0	DDR0_ODT22	DDR0_ODT23	AM17	MDA3
AW0	AW0	DDR0_ODT23	DDR0_ODT24	AM16	MDA4
AW0	AW0	DDR0_ODT24	DDR0_ODT25	AM15	MDA5
AW0	AW0	DDR0_ODT25	DDR0_ODT26	AM14	MDA2
AW0	AW0	DDR0_ODT26	DDR0_ODT27	AM13	MDA3
AW0	AW0	DDR0_ODT27	DDR0_ODT28	AM12	MDA0
AW0	AW0	DDR0_ODT28	DDR0_ODT29	AM11	MDA1
AW0	AW0	DDR0_ODT29	DDR0_ODT30	AM10	MDA2
AW0	AW0	DDR0_ODT30	DDR0_ODT31	AM09	MDA3
AW0	AW0	DDR0_ODT31	DDR0_ODT32	AM08	MDA4
AW0	AW0	DDR0_ODT32	DDR0_ODT33	AM07	MDA5
AW0	AW0	DDR0_ODT33	DDR0_ODT34	AM06	MDA2
AW0	AW0	DDR0_ODT34	DDR0_ODT35	AM05	MDA3
AW0	AW0	DDR0_ODT35	DDR0_ODT36	AM04	MDA0
AW0	AW0	DDR0_ODT36	DDR0_ODT37	AM03	MDA1
AW0	AW0	DDR0_ODT37	DDR0_ODT38	AM02	MDA2
AW0	AW0	DDR0_ODT38	DDR0_ODT39	AM01	MDA3
AW0	AW0	DDR0_ODT39	DDR0_ODT40	AM00	MDA4
AW0	AW0	DDR0_ODT40	DDR0_ODT41	AM00	MDA5
AW0	AW0	DDR0_ODT41	DDR0_ODT42	AM00	MDA2
AW0	AW0	DDR0_ODT42	DDR0_ODT43	AM00	MDA3
AW0	AW0	DDR0_ODT43	DDR0_ODT44	AM00	MDA4
AW0	AW0	DDR0_ODT44	DDR0_ODT45	AM00	MDA5
AW0	AW0	DDR0_ODT45	DDR0_ODT46	AM00	MDA2
AW0	AW0	DDR0_ODT46	DDR0_ODT47	AM00	MDA3
AW0	AW0	DDR0_ODT47	DDR0_ODT48	AM00	MDA4
AW0	AW0	DDR0_ODT48	DDR0_ODT49	AM00	MDA5
AW0	AW0	DDR0_ODT49	DDR0_ODT50	AM00	MDA2
AW0	AW0	DDR0_ODT50	DDR0_ODT51	AM00	MDA3
AW0	AW0	DDR0_ODT51	DDR0_ODT52	AM00	MDA4
AW0	AW0	DDR0_ODT52	DDR0_ODT53	AM00	MDA5
AW0	AW0	DDR0_ODT53	DDR0_ODT54	AM00	MDA2
AW0	AW0	DDR0_ODT54	DDR0_ODT55	AM00	MDA3
AW0	AW0	DDR0_ODT55	DDR0_ODT56	AM00	MDA4
AW0	AW0	DDR0_ODT56	DDR0_ODT57	AM00	MDA5
AW0	AW0	DDR0_ODT57	DDR0_ODT58	AM00	MDA2
AW0	AW0	DDR0_ODT58	DDR0_ODT59	AM00	MDA3
AW0	AW0	DDR0_ODT59	DDR0_ODT60	AM00	MDA4
AW0	AW0	DDR0_ODT60	DDR0_ODT61	AM00	MDA5
AW0	AW0	DDR0_ODT61	DDR0_ODT62	AM00	MDA2
AW0	AW0	DDR0_ODT62	DDR0_ODT63	AM00	MDA3
AW0	AW0	DDR0_ODT63	DDR0_ODT64	AM00	MDA4
AW0	AW0	DDR0_ODT64	DDR0_ODT65	AM00	MDA5
AW0	AW0	DDR0_ODT65	DDR0_ODT66	AM00	MDA2
AW0	AW0	DDR0_ODT66	DDR0_ODT67	AM00	MDA3
AW0	AW0	DDR0_ODT67	DDR0_ODT68	AM00	MDA4
AW0	AW0	DDR0_ODT68	DDR0_ODT69	AM00	MDA5
AW0	AW0	DDR0_ODT69	DDR0_ODT70	AM00	MDA2
AW0	AW0	DDR0_ODT70	DDR0_ODT71	AM00	MDA3
AW0	AW0	DDR0_ODT71	DDR0_ODT72	AM00	MDA4
AW0	AW0	DDR0_ODT72	DDR0_ODT73	AM00	MDA5
AW0	AW0	DDR0_ODT73	DDR0_ODT74	AM00	MDA2
AW0	AW0	DDR0_ODT74	DDR0_ODT75	AM00	MDA3
AW0	AW0	DDR0_ODT75	DDR0_ODT76	AM00	MDA4
AW0	AW0	DDR0_ODT76	DDR0_ODT77	AM00	MDA5
AW0	AW0	DDR0_ODT77	DDR0_ODT78	AM00	MDA2
AW0	AW0	DDR0_ODT78	DDR0_ODT79	AM00	MDA3
AW0	AW0	DDR0_ODT79	DDR0_ODT80	AM00	MDA4
AW0	AW0	DDR0_ODT80	DDR0_ODT81	AM00	MDA5
AW0	AW0	DDR0_ODT81	DDR0_ODT82	AM00	MDA2
AW0	AW0	DDR0_ODT82	DDR0_ODT83	AM00	MDA3
AW0	AW0	DDR0_ODT83	DDR0_ODT84	AM00	MDA4
AW0	AW0	DDR0_ODT84	DDR0_ODT85	AM00	MDA5
AW0	AW0	DDR0_ODT85	DDR0_ODT86	AM00	MDA2
AW0	AW0	DDR0_ODT86	DDR0_ODT87	AM00	MDA3
AW0	AW0	DDR0_ODT87	DDR0_ODT88	AM00	MDA4
AW0	AW0	DDR0_ODT88	DDR0_ODT89	AM00	MDA5
AW0	AW0	DDR0_ODT89	DDR0_ODT90	AM00	MDA2
AW0	AW0	DDR0_ODT90	DDR0_ODT91	AM00	MDA3
AW0	AW0	DDR0_ODT91	DDR0_ODT92	AM00	MDA4
AW0	AW0	DDR0_ODT92	DDR0_ODT93	AM00	MDA5
AW0	AW0	DDR0_ODT93	DDR0_ODT94	AM00	MDA2
AW0	AW0	DDR0_ODT94	DDR0_ODT95	AM00	MDA3
AW0	AW0	DDR0_ODT95	DDR0_ODT96	AM00	MDA4
AW0	AW0	DDR0_ODT96	DDR0_ODT97	AM00	MDA5
AW0	AW0	DDR0_ODT97	DDR0_ODT98	AM00	MDA2
AW0	AW0	DDR0_ODT98	DDR0_ODT99	AM00	MDA3
AW0	AW0	DDR0_ODT99	DDR0_ODT100	AM00	MDA4
AW0	AW0	DDR0_ODT100	DDR0_ODT101	AM00	MDA5
AW0	AW0	DDR0_ODT101	DDR0_ODT102	AM00	MDA2
AW0	AW0	DDR0_ODT102	DDR0_ODT103	AM00	MDA3
AW0	AW0	DDR0_ODT103	DDR0_ODT104	AM00	MDA4
AW0	AW0	DDR0_ODT104	DDR0_ODT105	AM00	MDA5
AW0	AW0	DDR0_ODT105	DDR0_ODT106	AM00	MDA2
AW0	AW0	DDR0_ODT106	DDR0_ODT107	AM00	MDA3
AW0	AW0	DDR0_ODT107	DDR0_ODT108	AM00	MDA4
AW0	AW0	DDR0_ODT108	DDR0_ODT109	AM00	MDA5
AW0	AW0	DDR0_ODT109	DDR0_ODT110	AM00	MDA2
AW0	AW0	DDR0_ODT110	DDR0_ODT111	AM00	MDA3
AW0	AW0	DDR0_ODT111	DDR0_ODT112	AM00	MDA4
AW0	AW0	DDR0_ODT112	DDR0_ODT113	AM00	MDA5
AW0	AW0	DDR0_ODT113	DDR0_ODT114	AM00	MDA2
AW0	AW0	DDR0_ODT114	DDR0_ODT115	AM00	MDA3
AW0	AW0	DDR0_ODT115	DDR0_ODT116	AM00	MDA4
AW0	AW0	DDR0_ODT116	DDR0_ODT117	AM00	MDA5
AW0	AW0	DDR0_ODT117	DDR0_ODT118	AM00	MDA2
AW0	AW0	DDR0_ODT118	DDR0_ODT119	AM00	MDA3
AW0	AW0	DDR0_ODT119	DDR0_ODT120	AM00	MDA4
AW0	AW0	DDR0_ODT120	DDR0_ODT121	AM00	MDA5
AW0	AW0	DDR0_ODT121	DDR0_ODT122	AM00	MDA2
AW0	AW0	DDR0_ODT122	DDR0_ODT123	AM00	MDA3
AW0	AW0	DDR0_ODT123	DDR0_ODT124	AM00	MDA4
AW0	AW0	DDR0_ODT124	DDR0_ODT125	AM00	MDA5
AW0	AW0	DDR0_ODT125	DDR0_ODT126	AM00	MDA2
AW0	AW0	DDR0_ODT126	DDR0_ODT127	AM00	MDA3
AW0	AW0	DDR0_ODT127	DDR0_ODT128	AM00	MDA4
AW0	AW0	DDR0_ODT128	DDR0_ODT129	AM00	MDA5
AW0	AW0	DDR0_ODT129	DDR0_ODT130	AM00	MDA2
AW0	AW0	DDR0_ODT130	DDR0_ODT131	AM00	MDA3
AW0	AW0	DDR0_ODT131	DDR0_ODT132	AM00	MDA4
AW0	AW0	DDR0_ODT132	DDR0_ODT133	AM00	MDA5
AW0	AW0	DDR0_ODT133	DDR0_ODT134	AM00	MDA2
AW0	AW0	DDR0_ODT134	DDR0_ODT135	AM00	MDA3
AW0	AW0	DDR0_ODT135	DDR0_ODT136	AM00	MDA4
AW0	AW0	DDR0_ODT136	DDR0_ODT137	AM00	MDA5
AW0	AW0	DDR0_ODT137	DDR0_ODT138	AM00	MDA2
AW0	AW0	DDR0_ODT138	DDR0_ODT139	AM00	MDA3
AW0	AW0	DDR0_ODT139	DDR0_ODT140	AM00	MDA4
AW0	AW0	DDR0_ODT140	DDR0_ODT141	AM00	MDA5
AW0	AW0	DDR0_ODT141	DDR0_ODT142	AM00	MDA2
AW0	AW0	DDR0_ODT142	DDR0_ODT143	AM00	MDA3
AW0	AW0	DDR0_ODT143	DDR0_ODT144	AM00	MDA4
AW0	AW0	DDR0_ODT144	DDR0_ODT145	AM00	MDA5
AW0	AW0	DDR0_ODT145	DDR0_ODT146	AM00	MDA2
AW0	AW0	DDR0_ODT146	DDR0_ODT147	AM00	MDA3
AW0	AW0	DDR0_ODT147	DDR0_ODT148	AM00	MDA4
AW0	AW0	DDR0_ODT148	DDR0_ODT149	AM00	MDA5
AW0	AW0	DDR0_ODT149	DDR0_ODT150	AM00	MDA2
AW0	AW0	DDR0_ODT150	DDR0_ODT151	AM00	MDA3
AW0	AW0	DDR0_ODT151	DDR0_ODT152	AM00	MDA4
AW0	AW0	DDR0_ODT152	DDR0_ODT153	AM00	MDA5
AW0	AW0	DDR0_ODT153	DDR0_ODT154	AM00	MDA2
AW0	AW0	DDR0_ODT154	DDR0_ODT155	AM00	MDA3
AW0	AW0	DDR0_ODT155	DDR0_ODT156	AM00	MDA4
AW0	AW0	DDR0_ODT156	DDR0_ODT157	AM00	MDA5
AW0	AW0	DDR0_ODT157	DDR0_ODT158	AM00	MDA2
AW0	AW0	DDR0_ODT158	DDR0_ODT159	AM00	MDA3
AW0	AW0	DDR0_ODT159	DDR0_ODT160	AM00	MDA4
AW0	AW0	DDR0_ODT160	DDR0_ODT161	AM00	MDA5
AW0	AW0	DDR0_ODT161	DDR0_ODT162	AM00	MDA2
AW0	AW0	DDR0_ODT162	DDR0_ODT163	AM00	MDA3
AW0	AW0	DDR0_ODT163	DDR0_ODT164	AM00	MDA4
AW0	AW0	DDR0_ODT164	DDR0_ODT165	AM00	MDA5
AW0	AW0	DDR0_ODT165	DDR0_ODT166	AM00	MDA2
AW0	AW0	DDR0_ODT166	DDR0_ODT167	AM00	MDA3
AW0	AW0	DDR0_ODT167	DDR0_ODT168	AM00	MDA4
AW0	AW0	DDR0_ODT168	DDR0_ODT169	AM00	MDA5
AW0	AW0	DDR0_ODT169	DDR0_ODT170	AM00	MDA2
AW0	AW0	DDR0_ODT170	DDR0_ODT171	AM00	MDA3
AW0	AW0	DDR0_ODT171	DDR0_ODT172	AM00	MDA4
AW0	AW0	DDR0_ODT172	DDR0_ODT173	AM00	MDA5
AW0	AW0	DDR0_ODT173	DDR0_ODT174	AM00	MDA2
AW0	AW0	DDR0_ODT174	DDR0_ODT175	AM00	MDA3
AW0	AW0	DDR0_ODT175	DDR0_ODT176	AM00	MDA4
AW0	AW0	DDR0_ODT176	DDR0_ODT177	AM00	MDA5
AW0	AW0	DDR0_ODT177	DDR0_ODT178	AM00	MDA2
AW0	AW0	DDR0_ODT178	DDR0_ODT179	AM00	MDA3
AW0	AW0	DDR0_ODT179	DDR0_ODT180	AM00	MDA4
AW0	AW0	DDR0_ODT180	DDR0_ODT181	AM00	MDA5
AW0	AW0	DDR0_ODT181	DDR0_ODT182	AM00	MDA2
AW0	AW0	DDR0_ODT182	DDR0_ODT183	AM00	MDA3
AW0	AW0	DDR0_ODT183	DDR0_ODT184	AM00	MDA4
AW0	AW0	DDR0_ODT184	DDR0_ODT185	AM00	MDA5
AW0	AW0	DDR0_ODT185	DDR0_ODT186	AM00	MDA2
AW0	AW0	DDR0_ODT186	DDR0_ODT187	AM00	MDA3
AW0	AW0	DDR0_ODT187	DDR0_ODT188	AM00	MDA4
AW0	AW0	DDR0_ODT188	DDR0_ODT189	AM00	MDA5
AW0	AW0	DDR0_ODT189	DDR0_ODT190	AM00	MDA2
AW0	AW0	DDR0_ODT190	DDR0_ODT191	AM00	MDA3
AW0	AW0	DDR0_ODT191	DDR0_ODT192	AM00	MDA4
AW0	AW0	DDR0_ODT192	DDR0_ODT193	AM00	MDA5
AW0	AW0				

LGA1150 (F, J)

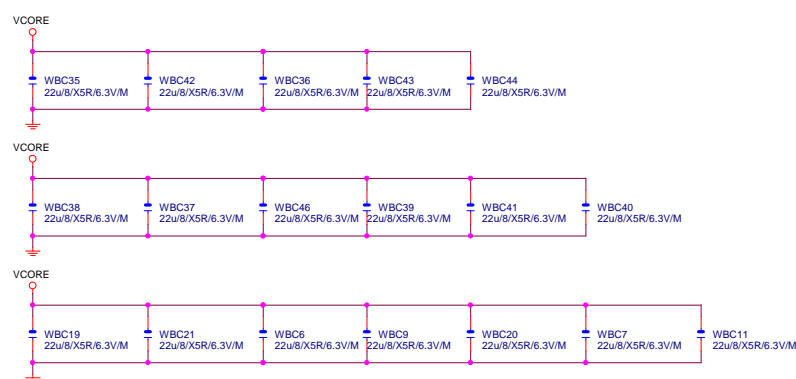


**LGA1150 (G,H,I)**



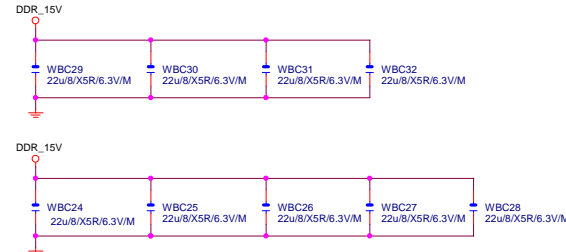
## VCore CAP

(X18)



DDR CAP

(x9)



## Gigabyte Technology

Title			
CPU LGA1150-C			
Size	Document Number	GA-B85N-Phoenix	Rev
Custom			1.1
Date:	Thursday, December 19, 2013	Sheet 6 of 32	







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

VCC1\_5\_PCH

NR50 7.5K/4/1 DMI\_COMP

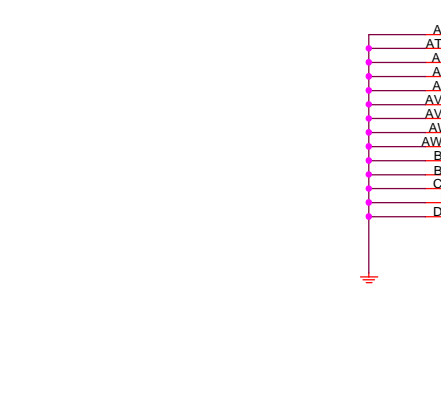
NR40 7.5K/4/1 PCIE\_COMP

CK\_SRCCLK\_PCH

CK\_SRCCLK\_PCH

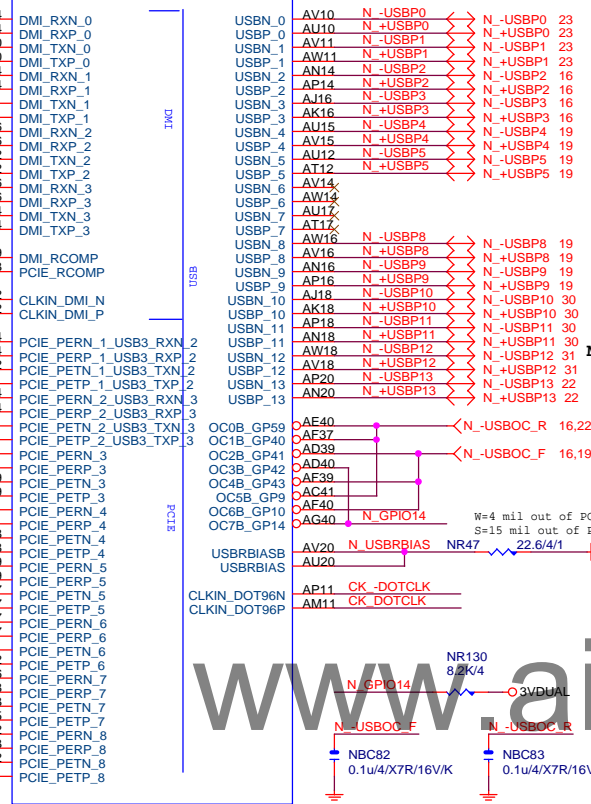
PCIE-E	23	LA_ML_IN		
	23	LA_ML_IP		
	23	LA_ML_ON		
	23	LA_ML_OP		
	31	MPICIE_INO		
	31	MPICIE_IP0	0.1u4/X7R/16V/K	NBC84PET N5
	31	MPICIE_TNO	0.1u4/X7R/16V/K	NBC85PET P5
	31	MPICIE_TPO		

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



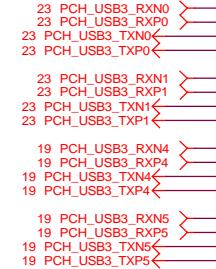
PCHB

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



DH82B85/S

(—)

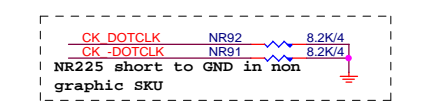


VCC3

Page 12 of 12



Mount for integrated clock Generation Mode



10/11/12

SB\_HEATSIN

1X

GRAY HS

2X

PCH\_HS

PCH\_HS/[12SP2-S03507-01R]

**USE INDEX**

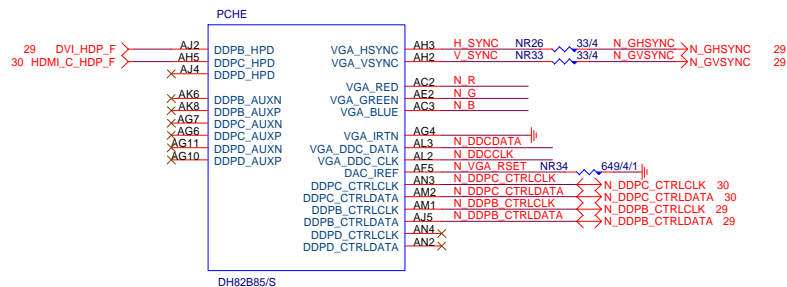
```
OC[3:0]# for Device 29 (ports 0-7)
OC[7:4]# for Device 26 (ports 8-13)
```

USB OC# Configure	
OC0#	F_USB30
OC1#	USB30_LAN2
OC2#	USB30_LAN1
OC3#	N/A
OC4#	F_USB20
OC5#	KB_MS_USB
OC6#	MINI_PCIE
OC7#	Not Use

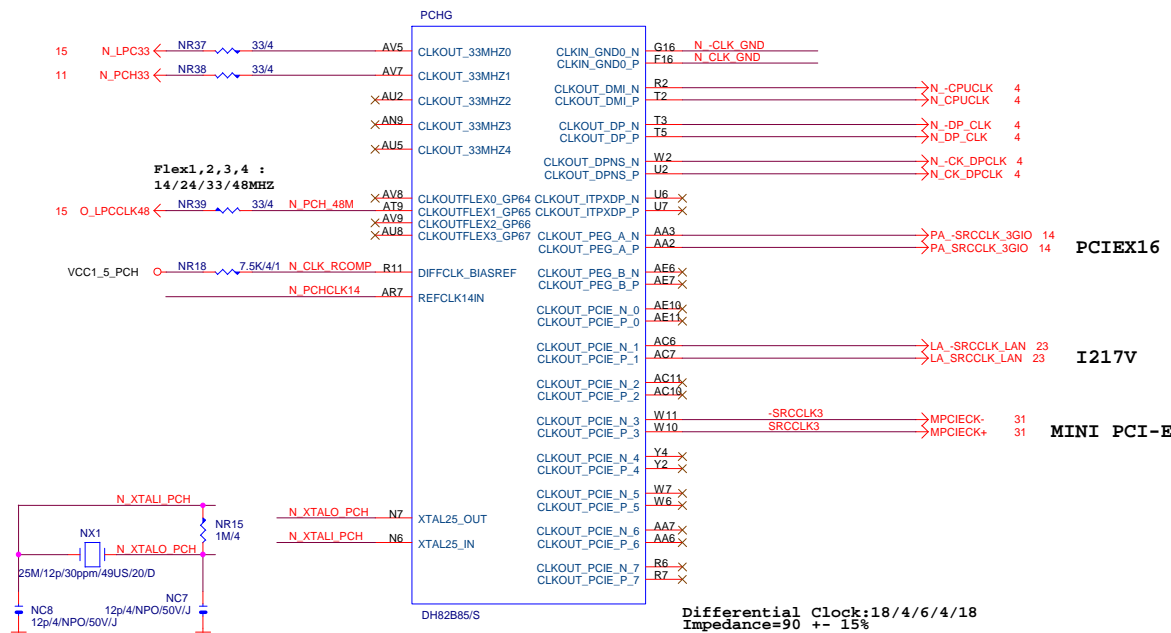
## Gigabyte Technology

Title			
PCH FDI,DMI,USB ,PCIE,NVRAM			
Size	Document Number	Rev	
Custom	GA-B85N-Phoenix	1.1	
Date:	Thursday, December 19, 2013	Sheet	9 of 32

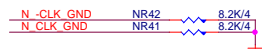
**PCH (E)**



**PCH (G)**



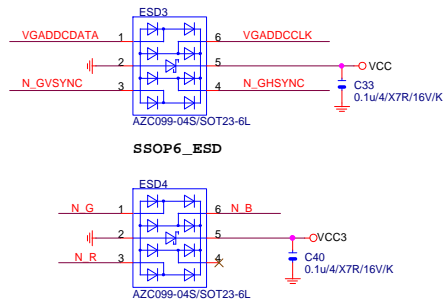
PCH CLK PD
------------



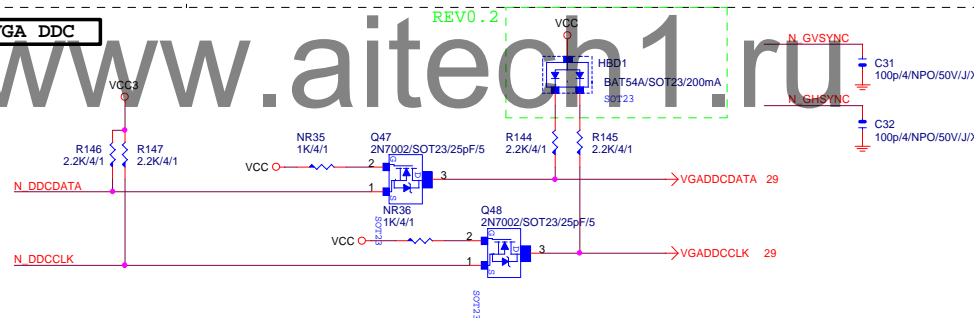
Mount for integrated clock Generation  
Mode



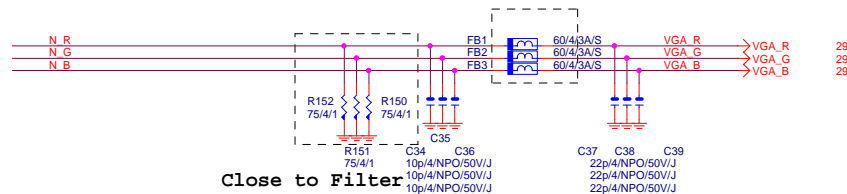
## VGA ESD



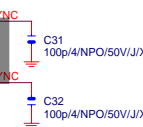
## VGA DDC



## VGA DDC

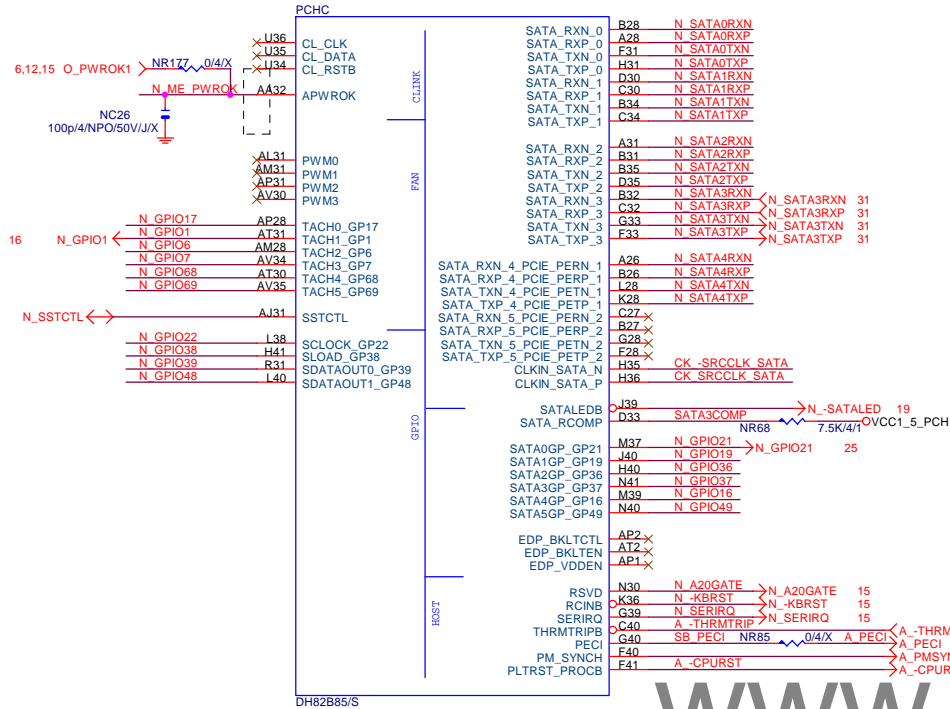


## VGA CONNECTOR

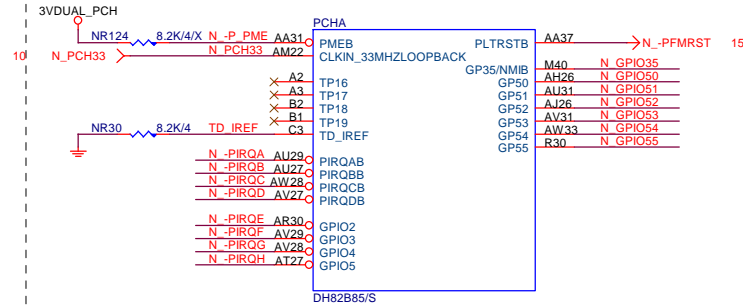


# PCH (C)

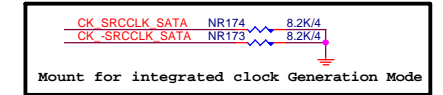
SATA3 : 20/7.5/4.5/7.5/20 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%  
SATA2 : 15/7.5/4.5/7.5/15 (breakout min 8/4/4/4/8)  
Impedance=90 +- 17.5%



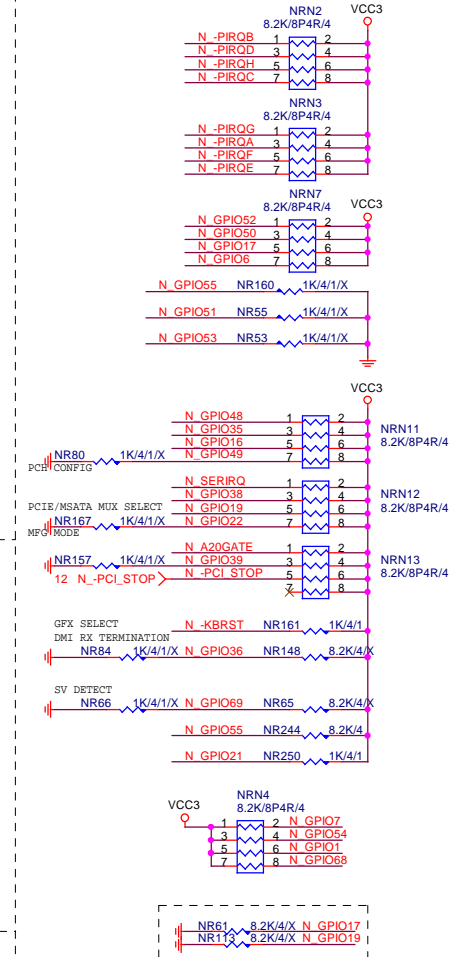
# PCH (A)



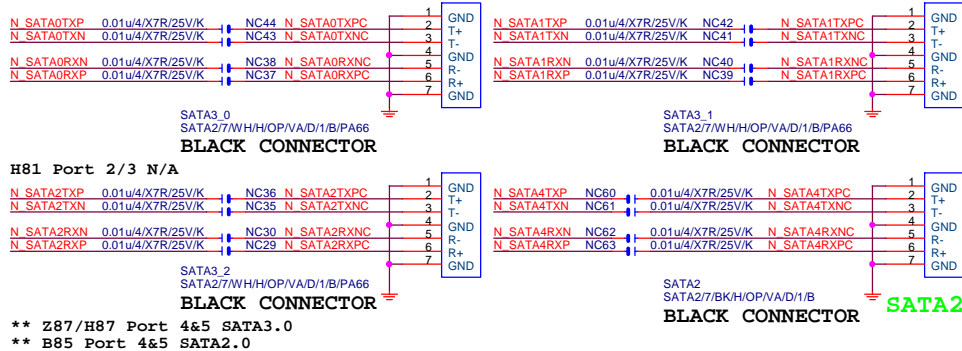
# PCH CLK PD



# PCH PU/PD



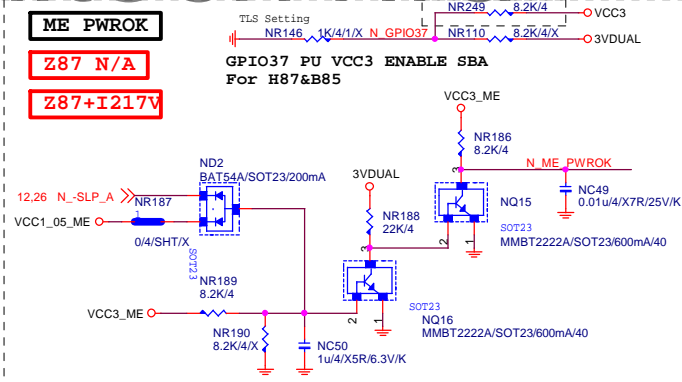
# SATA CONNECTOR



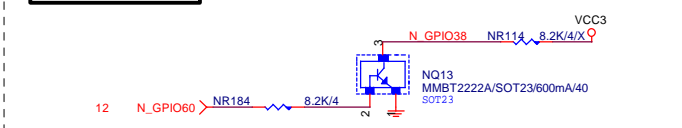
# ME PWROK

Z87 N/A

Z87+I217V



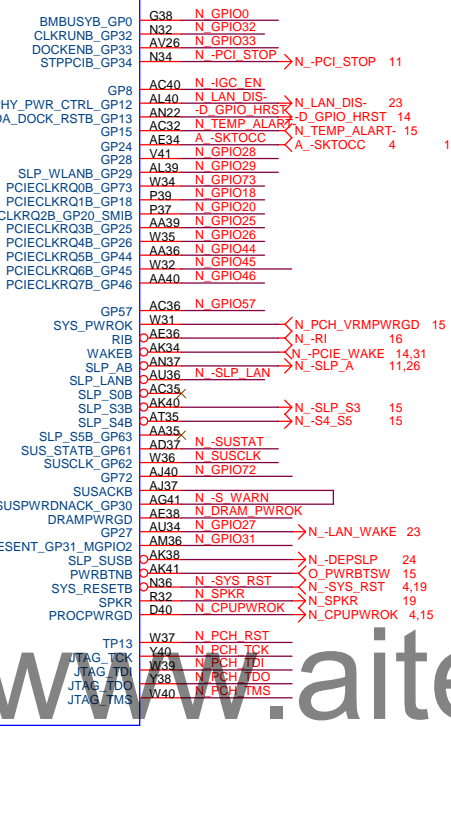
# GPIO38 Ctrl



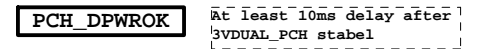
# Gigabyte Technology

Title		PCH HOST , SATA, PCI		Rev 1.1
Size Custom	Document Number	GA-B85N-Phoenix		
Date:	Thursday, December 19, 2013	Sheet	11 of 32	

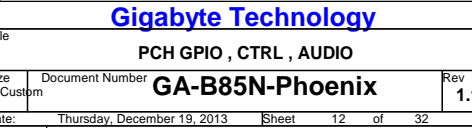
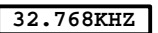
(D)



## ACZ\_SDOUT

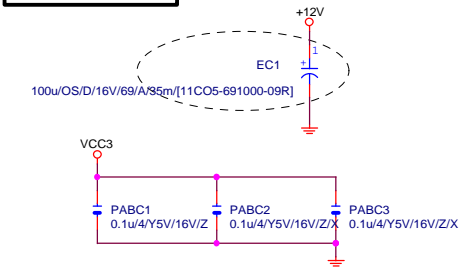


CPU VRDY

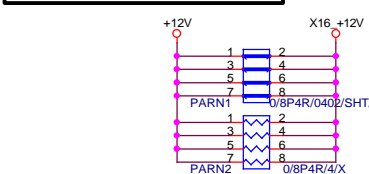




# PCIEX16 CAP



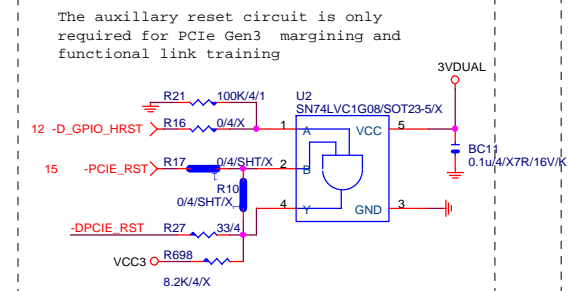
# PCIEX16 PROTECT SHT



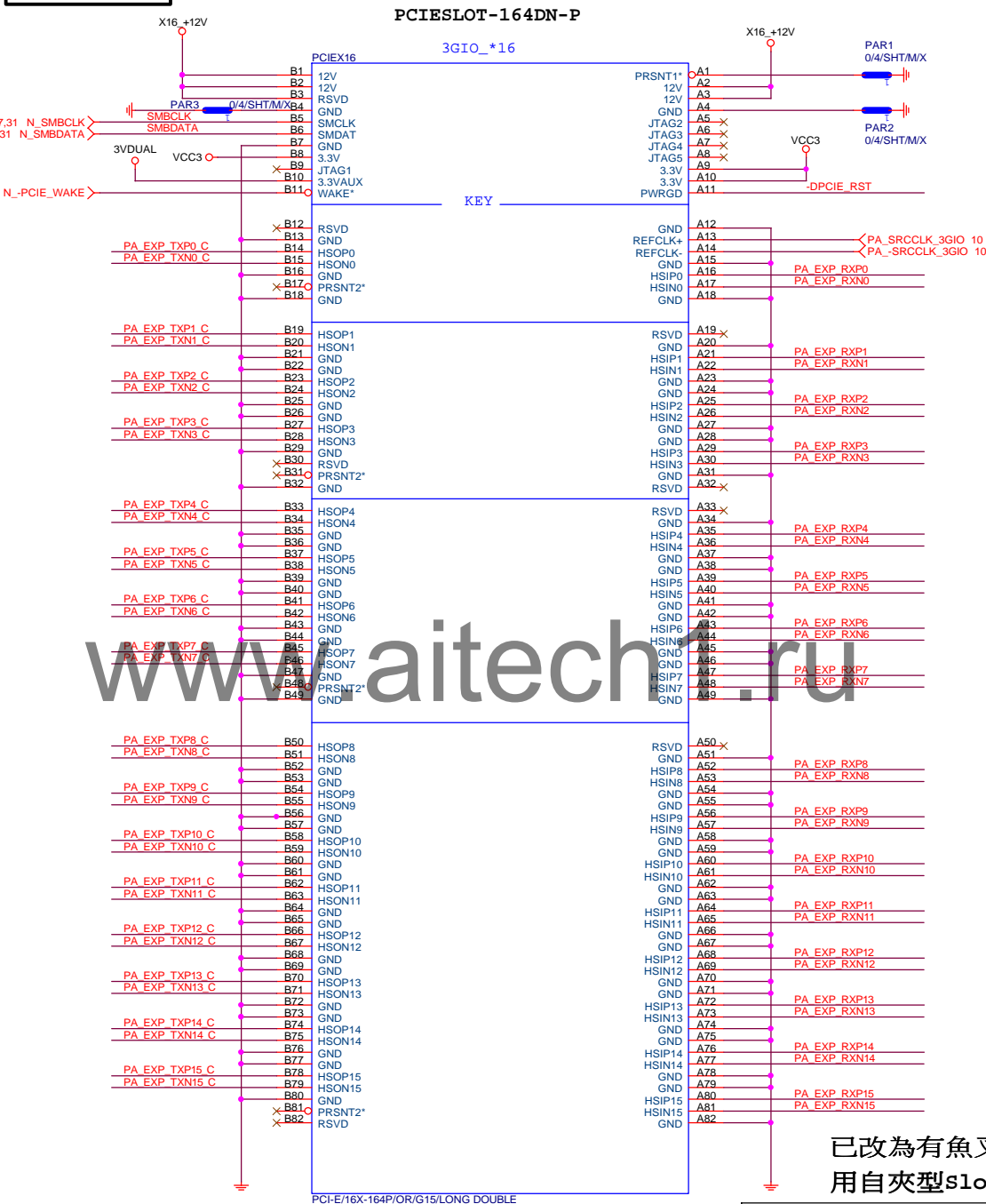
# PCIEX16 AC CAP

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 RXP0.15] >>> 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



BLACK CONNECTOR

已改為有魚叉腳的slot  
 用自夾型slot

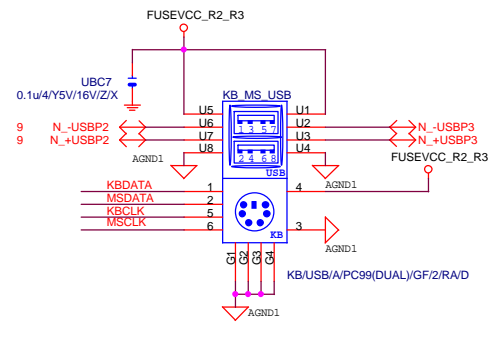
Gigabyte Technology

Title			PCI EXPRESS * 16		
Size			GA-B85N-Phoenix		
Custom			Rev 1.1		
Date:			Thursday, December 19, 2013		
Sheet			14 of 32		

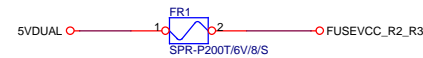




## KB/MS

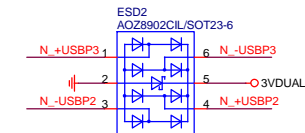


## USB2.0 PWR

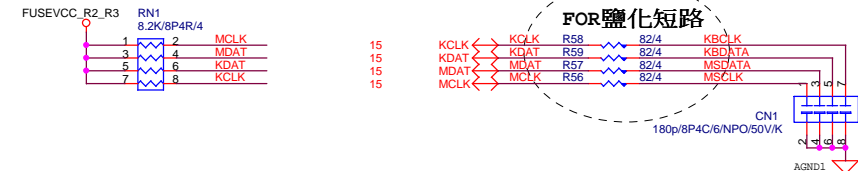


Close to connector  
KB\_MS\_USB 2-Port 2.0A

## USB2.0 ESD

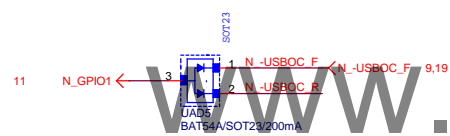
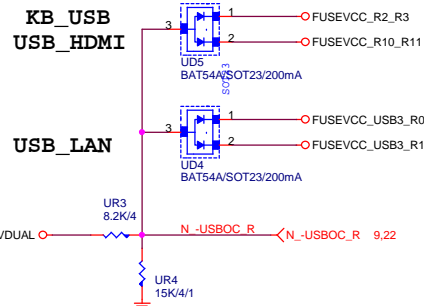


## KB\_MS



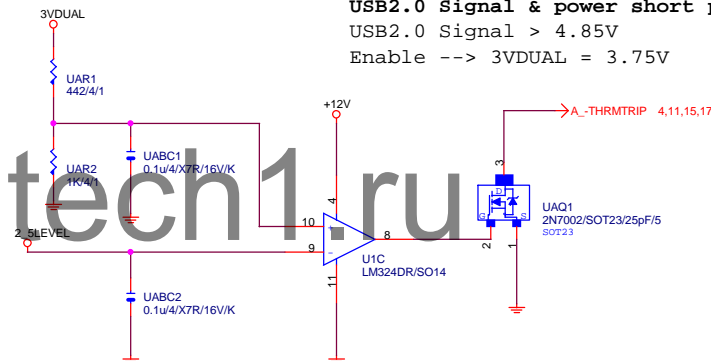
## -USBOC\_R

## USB POWER PROTECT

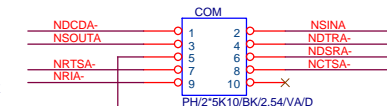
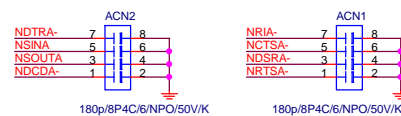
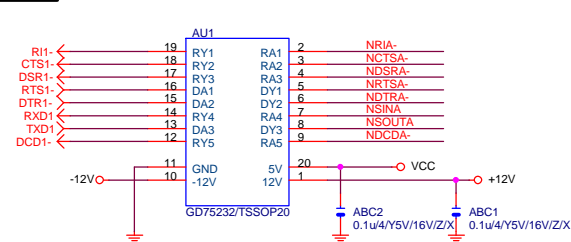


## USB2.0 Short Power Protection

USB2.0 Signal & power short protection  
USB2.0 Signal > 4.85V  
Enable --> 3VDUAL = 3.75V

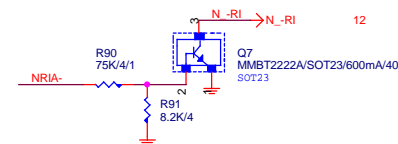


## COM



PIN2X5-CUT10-COM

## COM RI

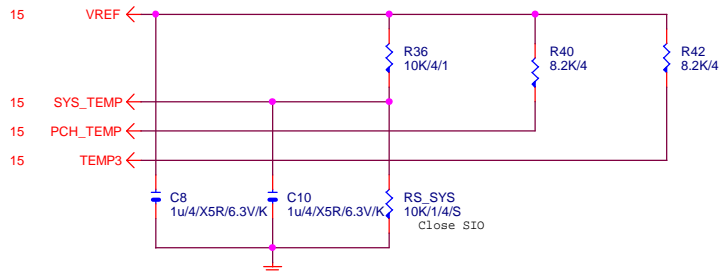


Gigabyte Technology

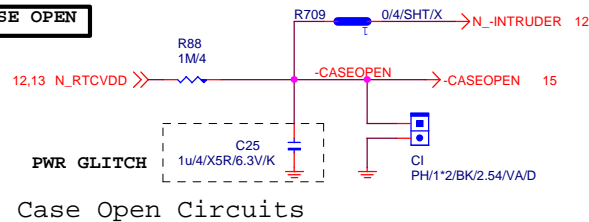
Title			
COM-RI,KB_USB,USB_ESATA-PROCHOT			
Size	Document Number	Rev	
Custom	GA-B85N-Phoenix	1.1	
Date:	Thursday, December 19, 2013	Sheet	16 of 32



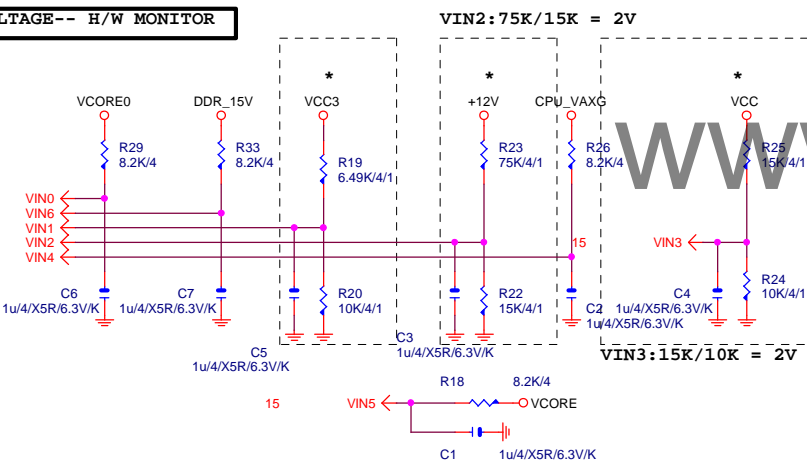
# TEMP H/W MONITOR



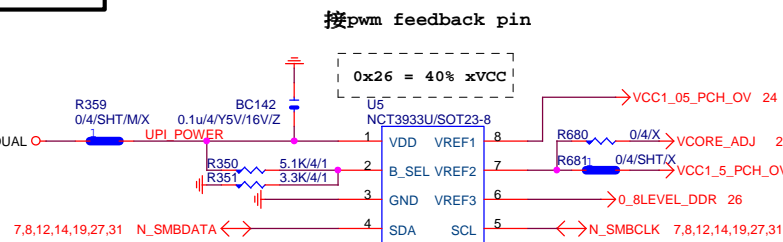
# CASE OPEN



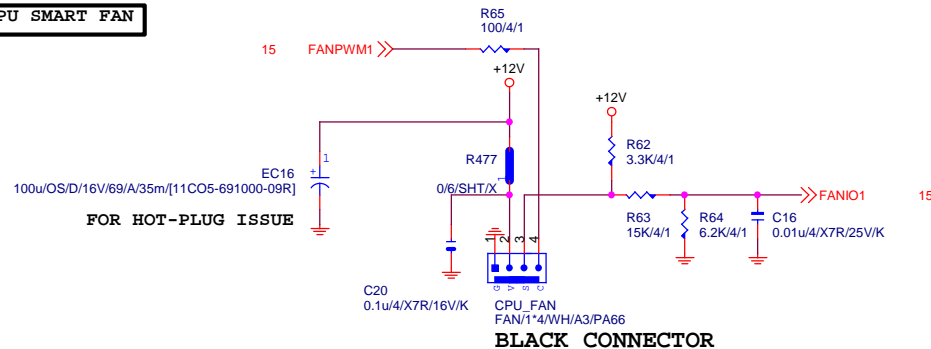
# VOLTAGE-- H/W MONITOR



# OV NCT3933

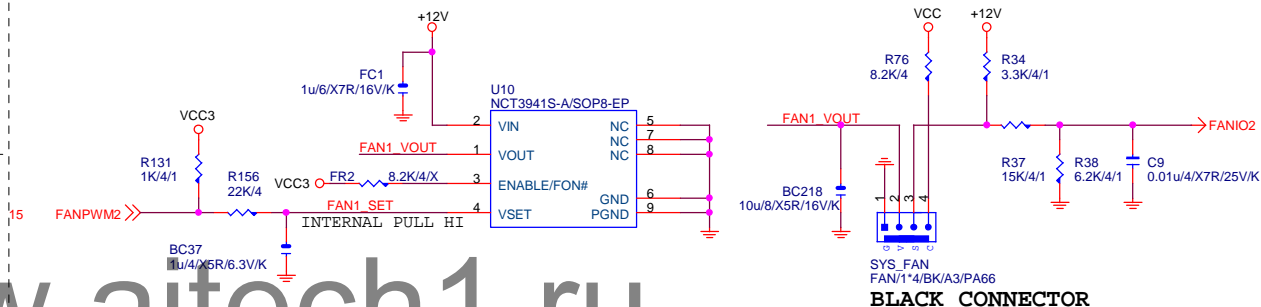


# CPU SMART FAN

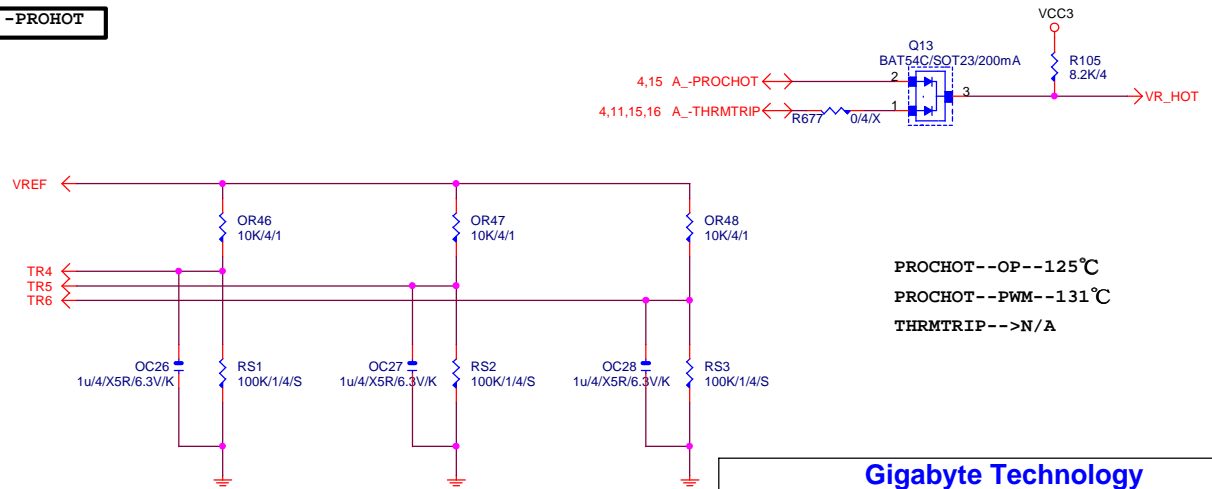


# SYS SMART FAN

Linear SYS\_FAN



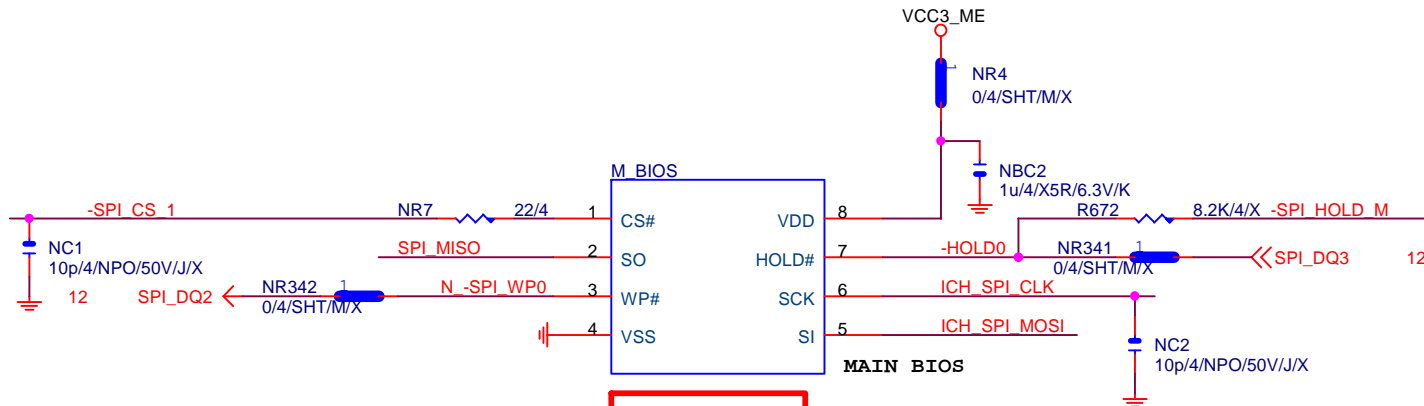
# -PROHOT



RS1、RS2、RS3 CLOSE CPU  
VR MOSFET

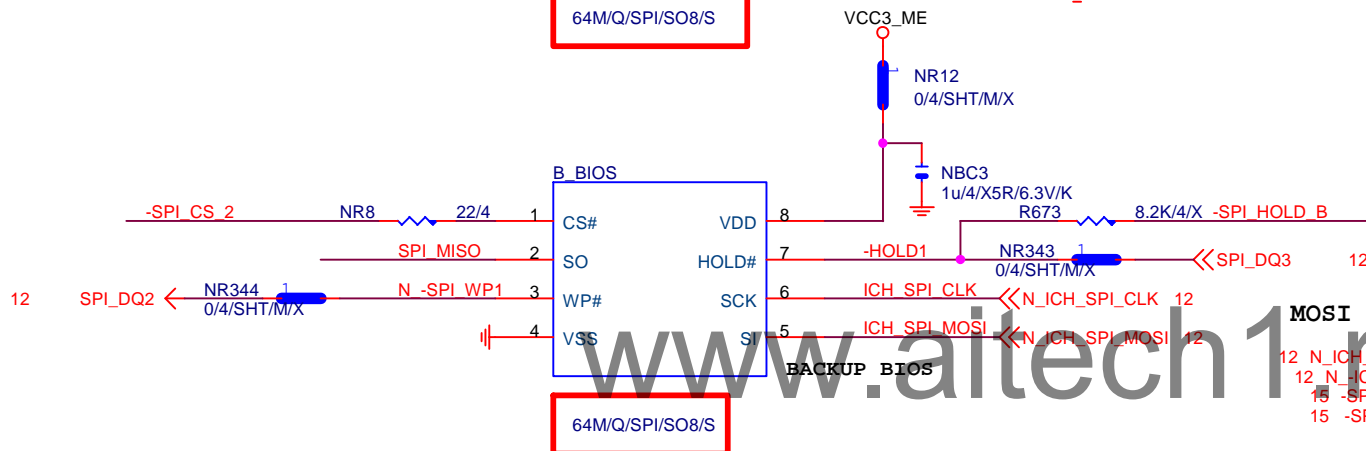
Gigabyte Technology

Title			HWM,FAN CTRL,OV
Size	Document Number	GA-B85N-Phoenix	
Custom		Rev	1.1
Date:	Thursday, December 19, 2013	Sheet	17 of 32

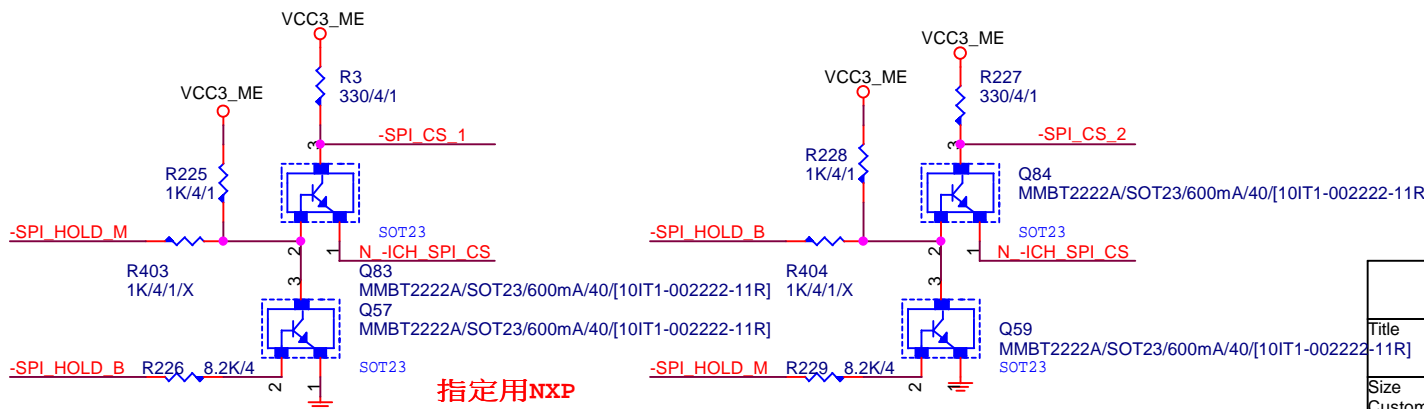
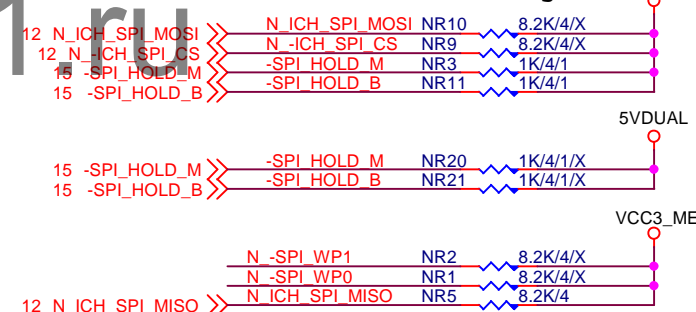


BOOT DEVICE	GNT0	GNT1
LPC	0	0
PCI	0	1
NAND	1	0
SPI	1	1

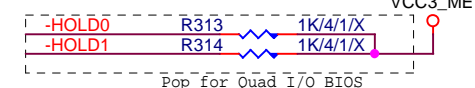
1 means floating  
0 means PD 1K



#### MOSI For DMI RX Termination Voltage



#### CHECK



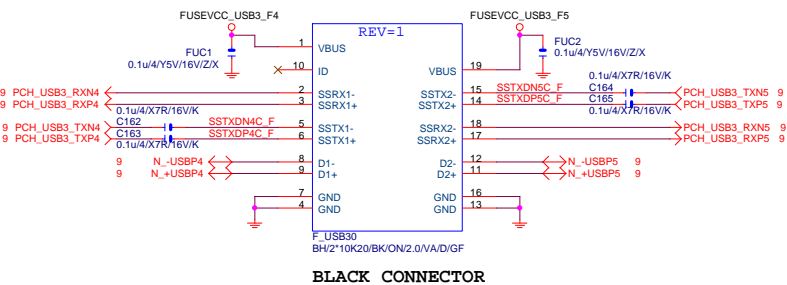
**Gigabyte Technology**

**DUAL BIOS**

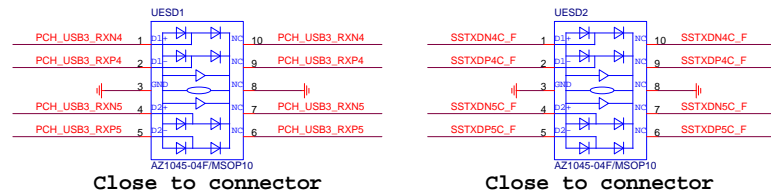
**GA-B85N-Phoenix**

Title	Custom	Document Number	Rev
			1.1
Date	Thursday, December 19, 2013	Sheet	18 of 32

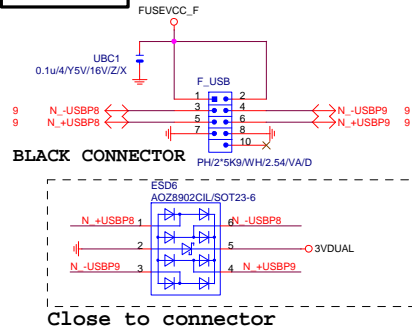
F\_USB30



F_USB30 ESD PROTECT
---------------------



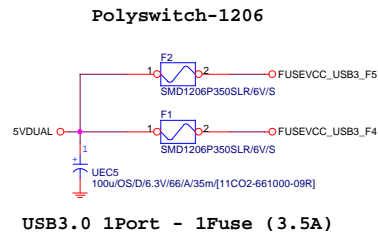
FRONT USB1



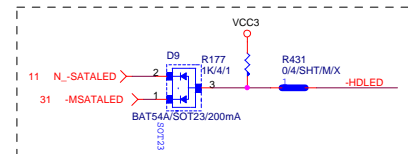
## FUSEVCC\_F



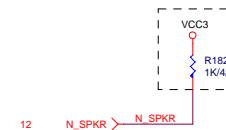
F_USB30 PWR	
-------------	--



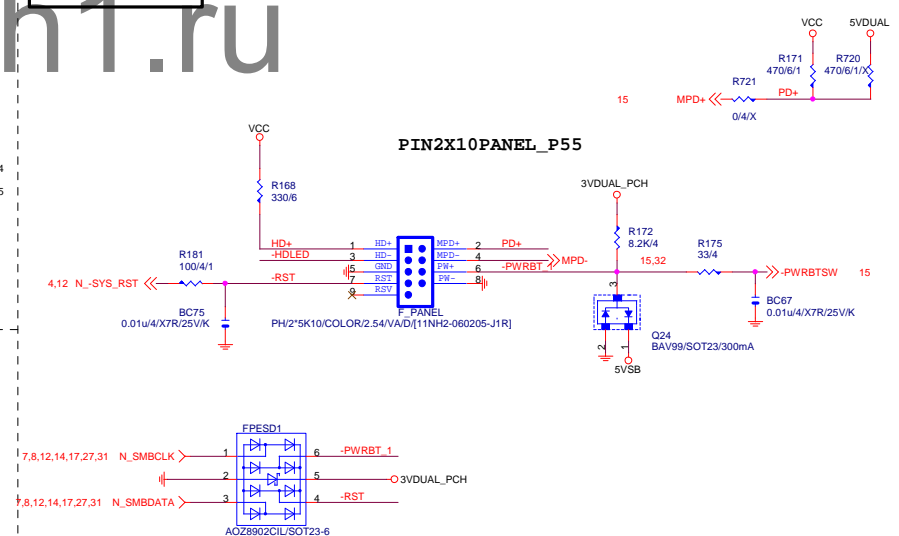
SATA LED



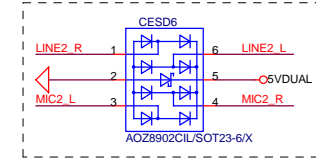
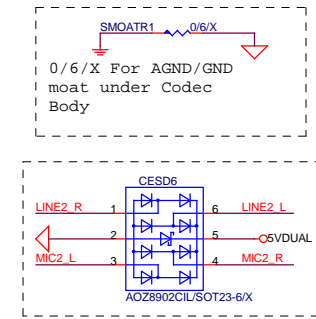
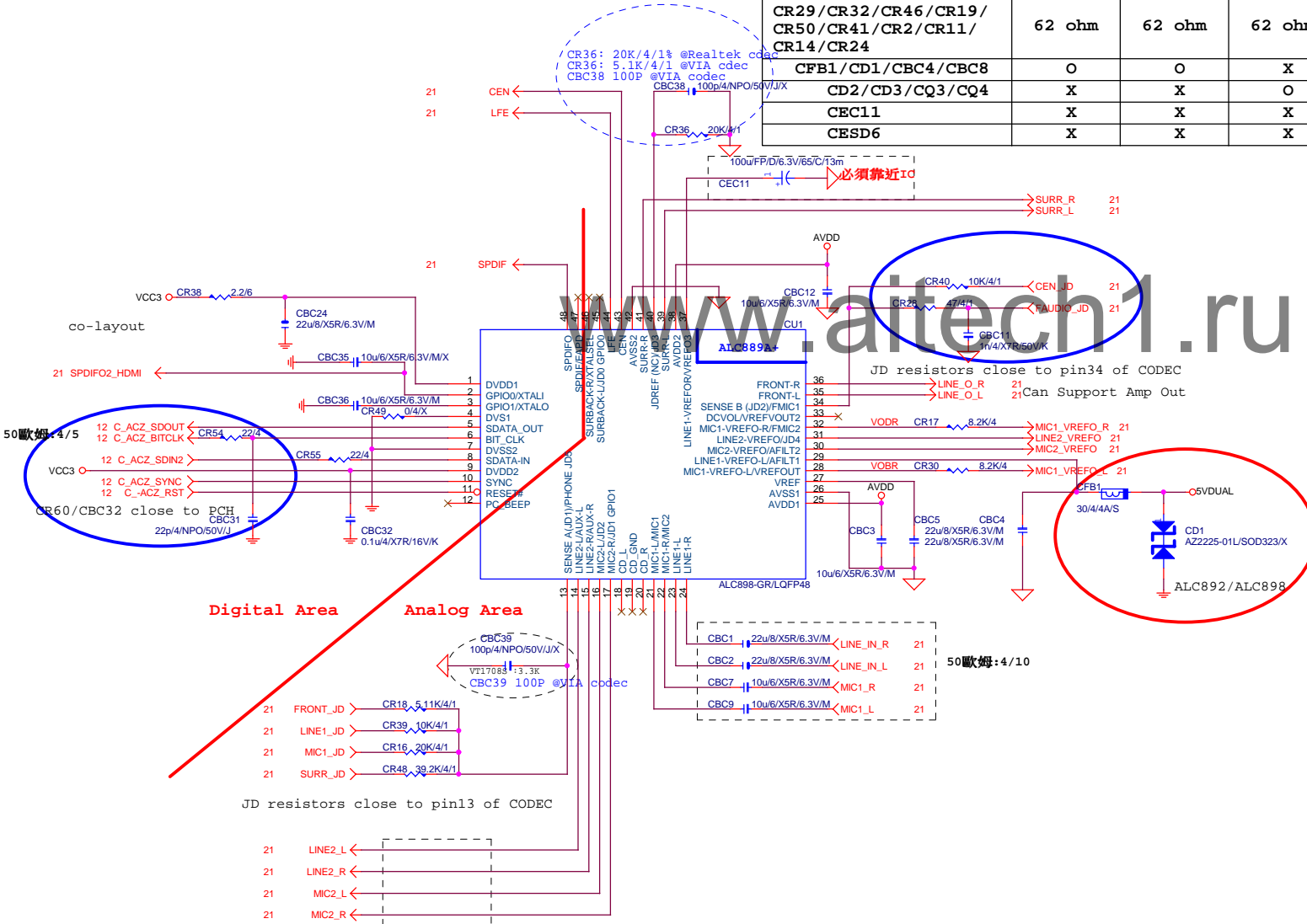
## SPKR

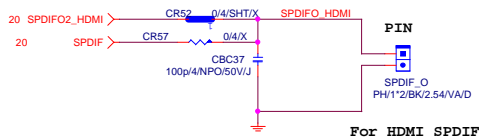
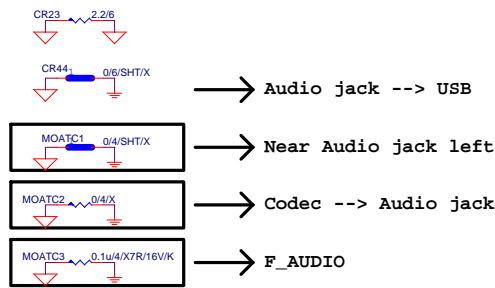


## INTEL FRONT PANEL

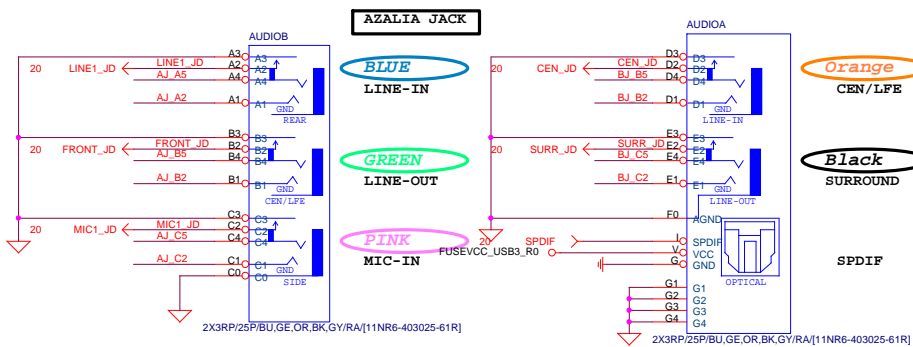


	ALC662	ALC887-VD2	ALC889	VT1708S-CD	VT1708S-CE	VT2021	ALC898/ALC892
CR49	X	X	O	O	X	O	X
CBC36	O	O	X	X	O	X	O
CR28/CBC11	47ohm+1nF	47ohm+1nF	47ohm+1nF	22ohm+100P	22ohm+100P	47ohm+1nF	47ohm+1nF
CR52	X	O	O	O	O	O	O
CR57	O	X	X	X	X	X	X
CBC1/CBC2	10uF/X5R	10uF/X5R	22uF/X5R	10uF/X5R	10uF/X5R	10uF/X5R	22uF/X5R
CR36	20K/4/1	20K/4/1	20K/4/1	5.1K/4/1	20K/4/1	5.1K/4/1	20K/4/1
CR17/CR30/ CR25/CR15/CR12/CR3/	8.2K/4	8.2K/4	8.2K/4	3.3K/4/1	3.3K/4/1	3.3K/4/1	8.2K/4
CBC38/CBC39	X	X	X	100P/4	100P/4	X	X
CR10/CR8/CR20/CR45/ CR42/CR51/CR27/CR26	22K/4	22K/4	22K/4	10K/4/1	10K/4/1	10K/4/1	22K/4
CR7/CR9/CR5/CR13/ CR29/CR32/CR46/CR19/ CR50/CR41/CR2/CR11/ CR14/CR24	62 ohm	62 ohm	62 ohm	75 ohm	75 ohm	75 ohm	62 ohm
CFB1/CD1/CBC4/CBC8	O	O	X	X	O	X	O
CD2/CD3/CQ3/CQ4	X	X	O	O	X	O	X
CEC11	X	X	X	X	X	X	O
CESD6	X	X	X	O	O	O	X

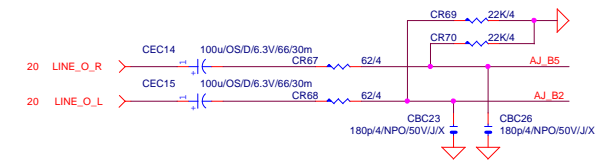




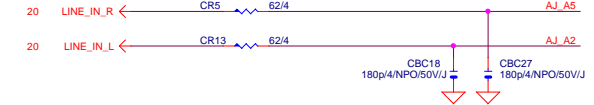
# AZALIA JACK BTX AZALIA CONNECTOR



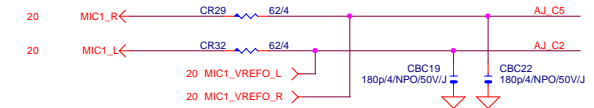
## LINE-OUT



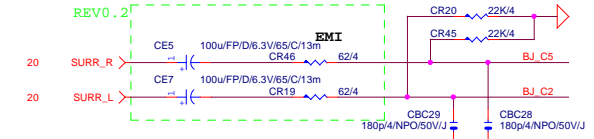
## LINE-IN



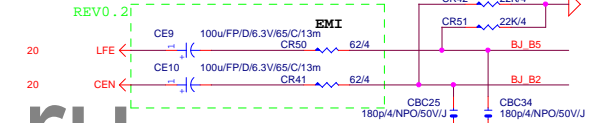
## MIC-IN



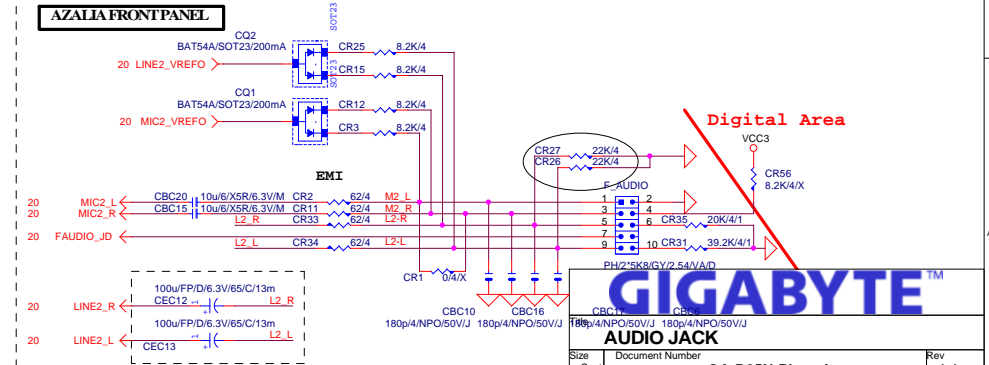
## SURROUND



## CEN/LFE



## AZALIA FRONT PANEL



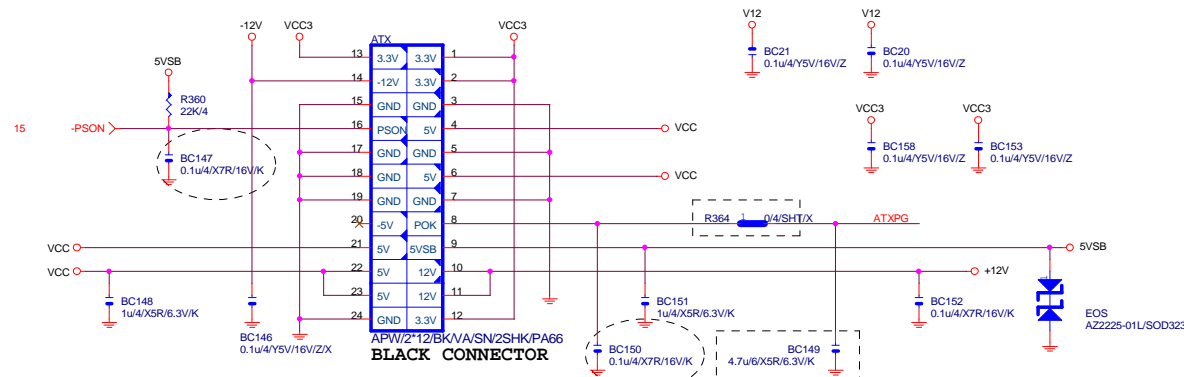




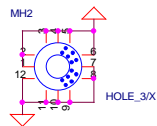




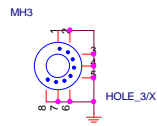
# ATXX24 POWER CONNECTOR



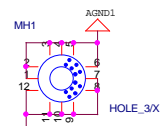
## MB LOCATION



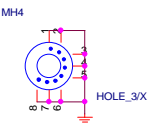
HOLE\_4-RH-5MM-1



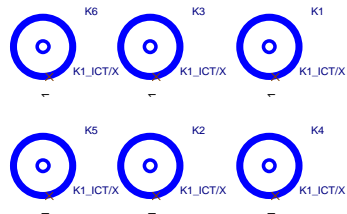
HOLE\_4-RH-5MM-5PIN-1



HOLE\_4-RH-5MM-1

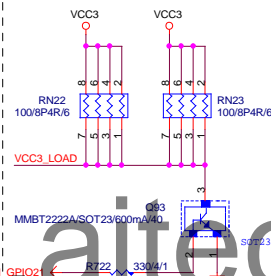


HOLE\_4-RH-5MM-5PIN-1



To prevent the 5VSB under loading when boot

## FIX PWR MINMUN LOAD



# ATXX4 POWER CONNECTOR

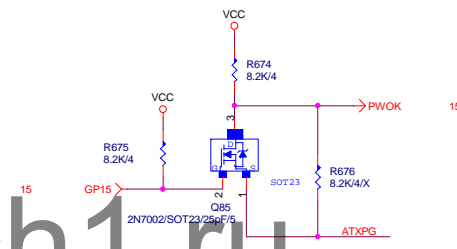


ATX\_4-6

BLACK CONNECTOR

## PWOK PATCH

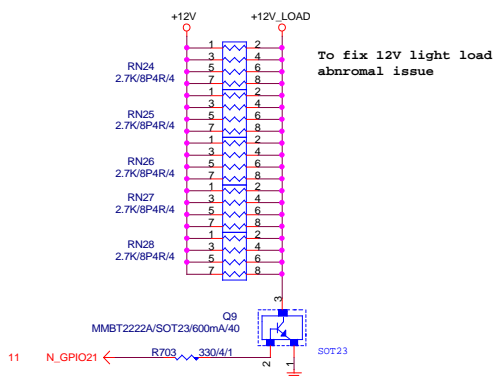
【技術通報R&D技術通報154】



## CLK GEN

N/A

【技術通報R&D技術通報153】



Gigabyte Technology

ATX CONNECTOR

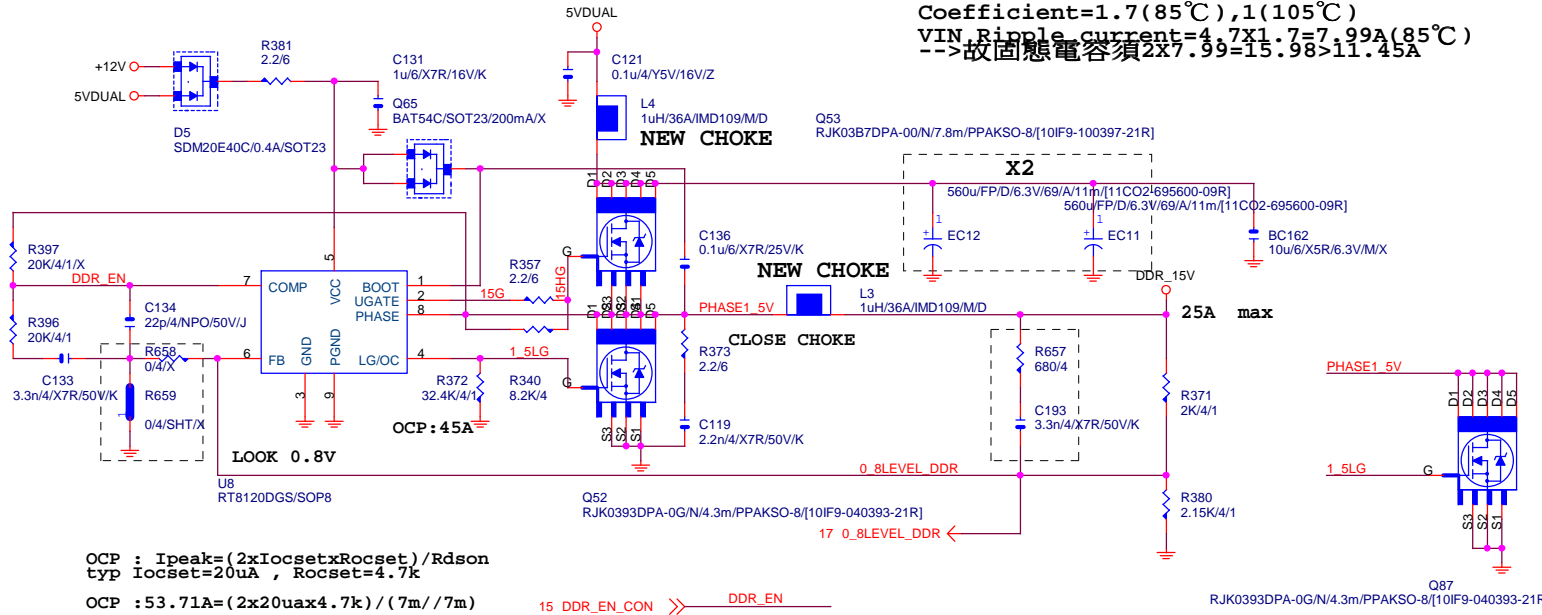
GA-B85N-Phoenix

Rev 1.1

Date: Thursday, December 19, 2013 Sheet 25 of 32

# DDR15V

VIN=5V, VOUT=1.5V, IOUT=25A, PHASE=1  
 IRMS=11.45A  
 560u/FP/D/6.3V/68/8m RIPPLE CURRENT=4.7A  
 Coefficient=1.7(85°C), 1(105°C)  
 VIN Ripple current=4.7x1.7=7.99A(85°C)  
 -->故固態電容須 $2 \times 7.99 = 15.98 > 11.45A$

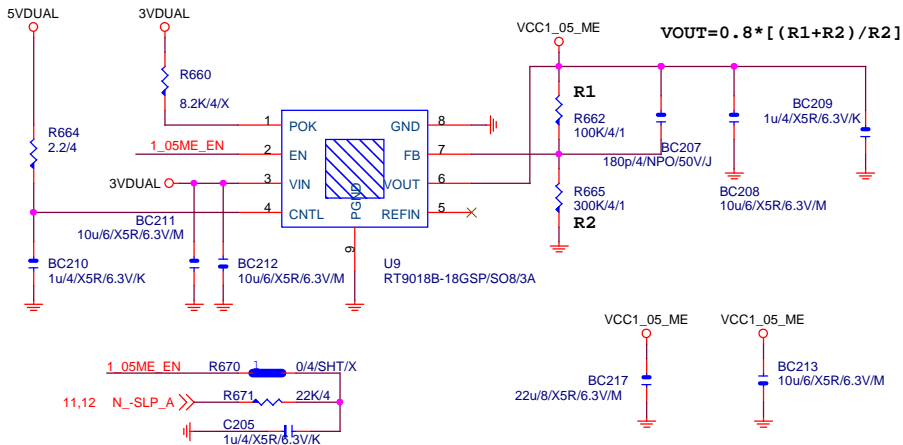


# VCC1\_05\_ME

Z87 N/A

Z87+I217V

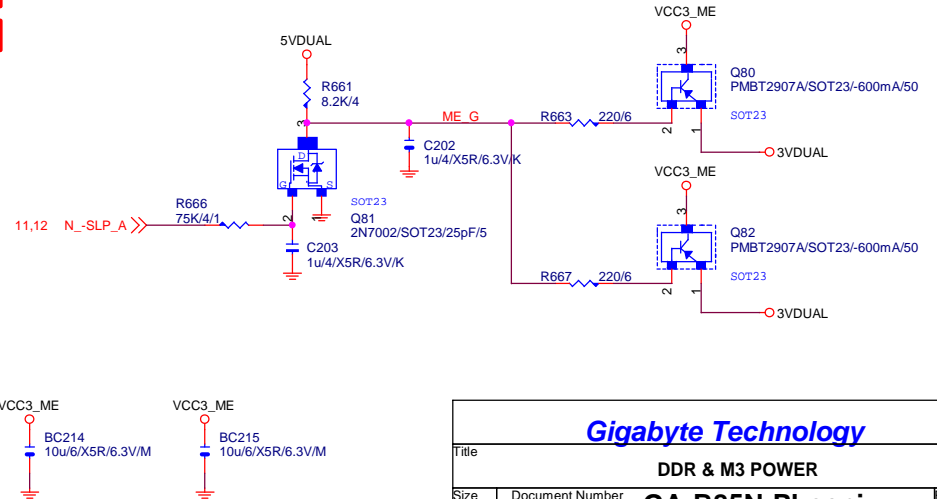
【技術通報R&D技術通報156】  
 (RICHTER), (NUVOTON), (EMC)做共用  
 PIN7分壓阻值須做修改為100K以上電阻值



# VCC3\_ME

Z87 N/A

Z87+I217V

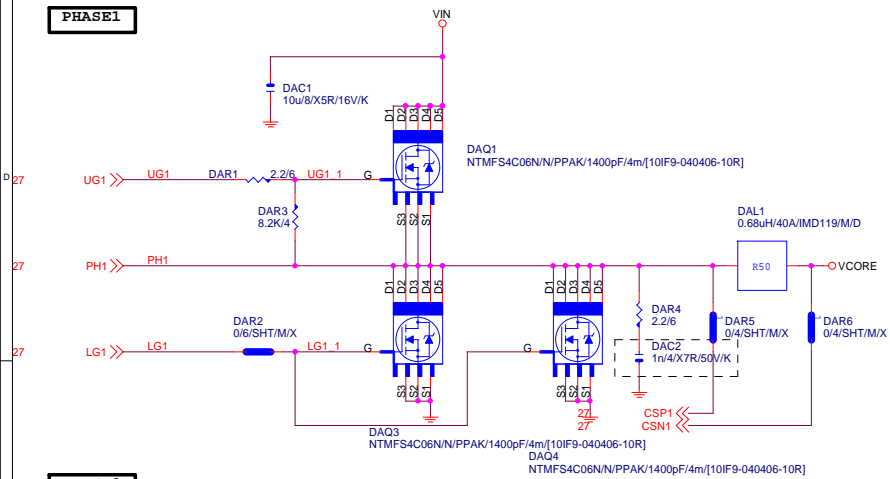


Gigabyte Technology

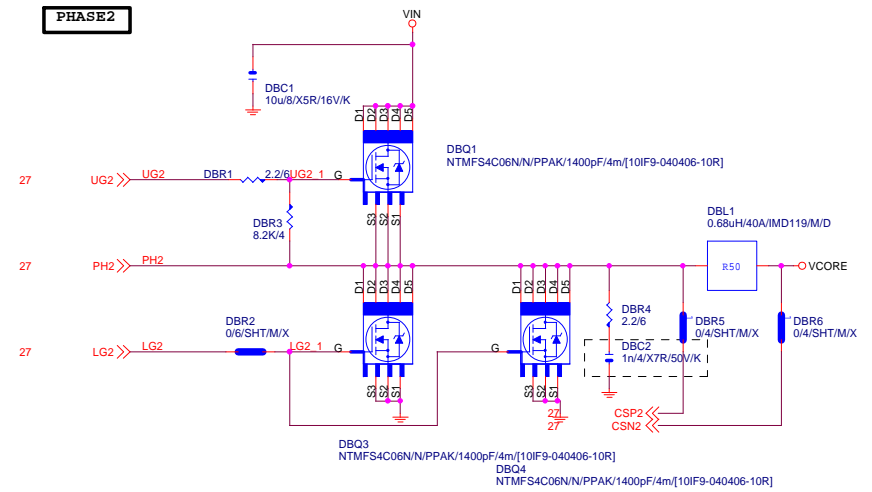
Title			
DDR & M3 POWER			
Size	Document Number	Rev	
B	GA-B85N-Phoenix	1.1	
Date	Thursday, December 19, 2013	Sheet	26 of 32



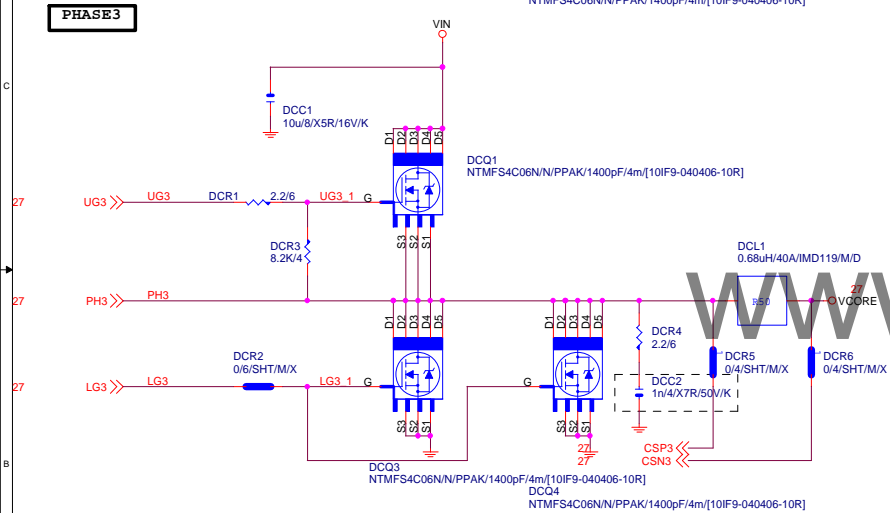
# PHASE1



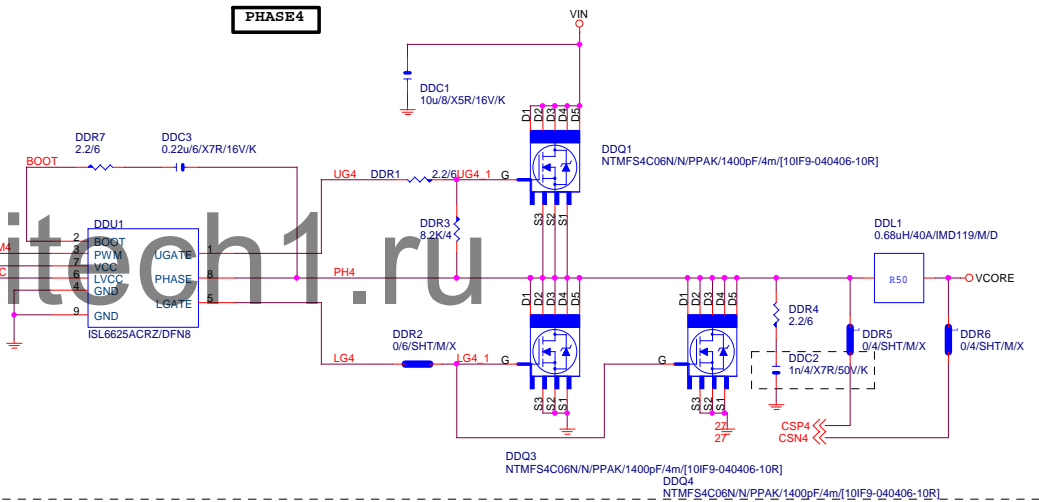
# PHASE2



# PHASE3

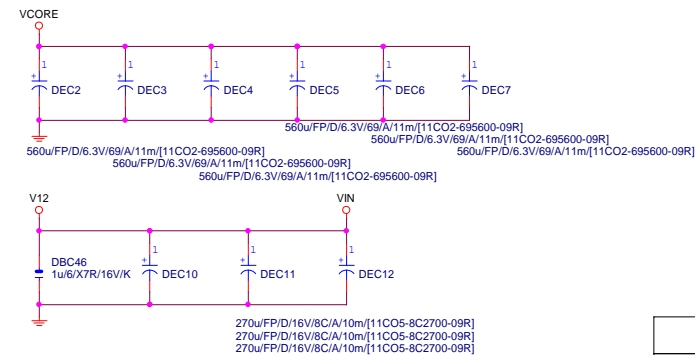


# PHASE4



# MOS HEATSINK

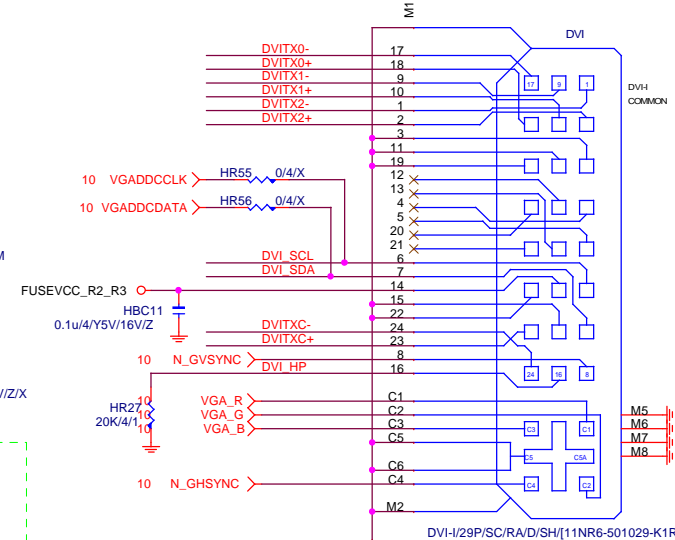
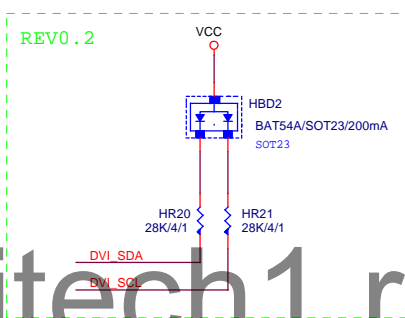
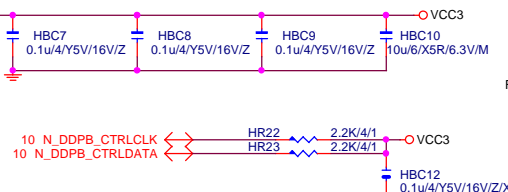
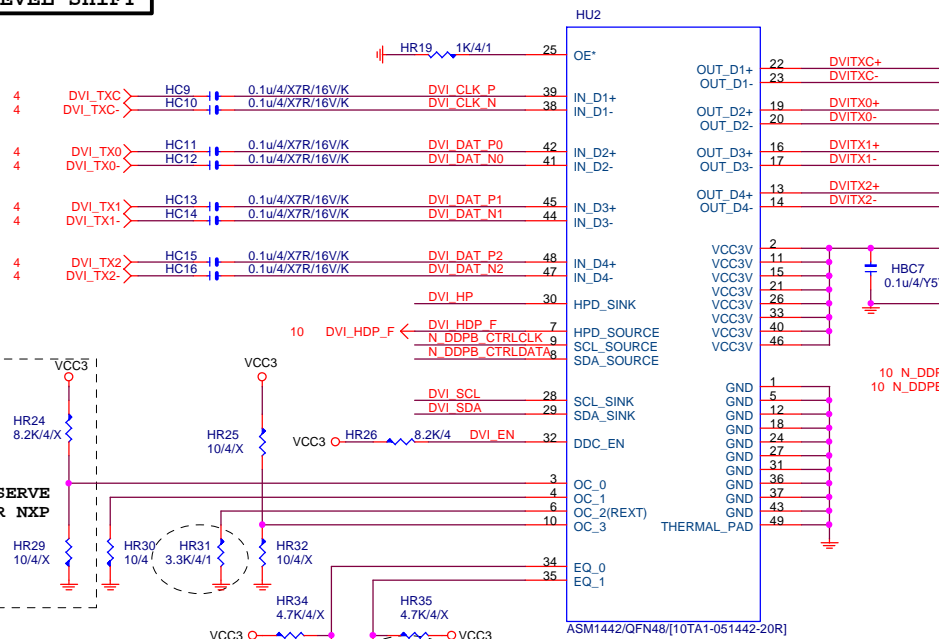
N/A



Gigabyte Technology

Title			CPU CORE VR-2
Size	Document Number	GA-B85N-Phoenix	
Custom		Rev	1.1
Date:	Thursday, December 19, 2013	Sheet	28 of 32

# DVI LEVEL SHIFT



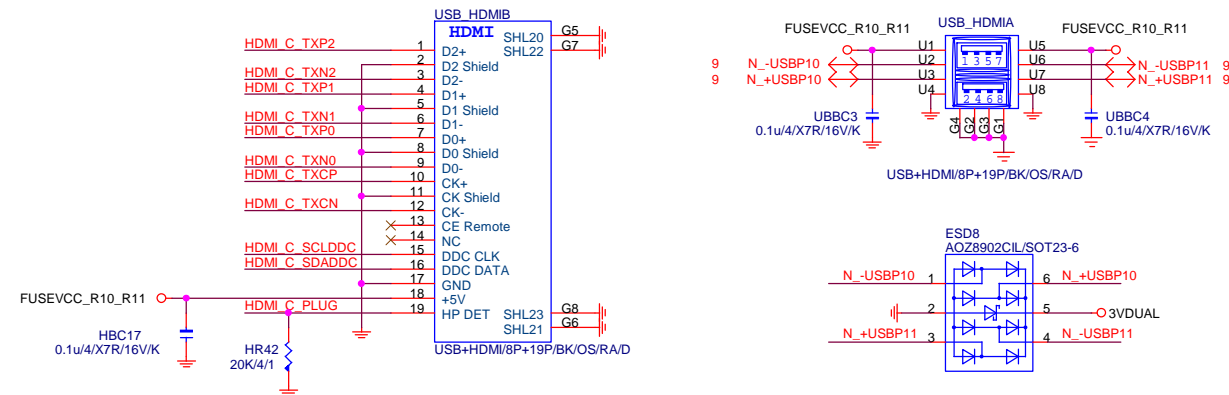
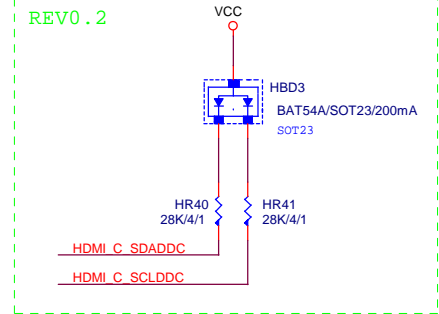
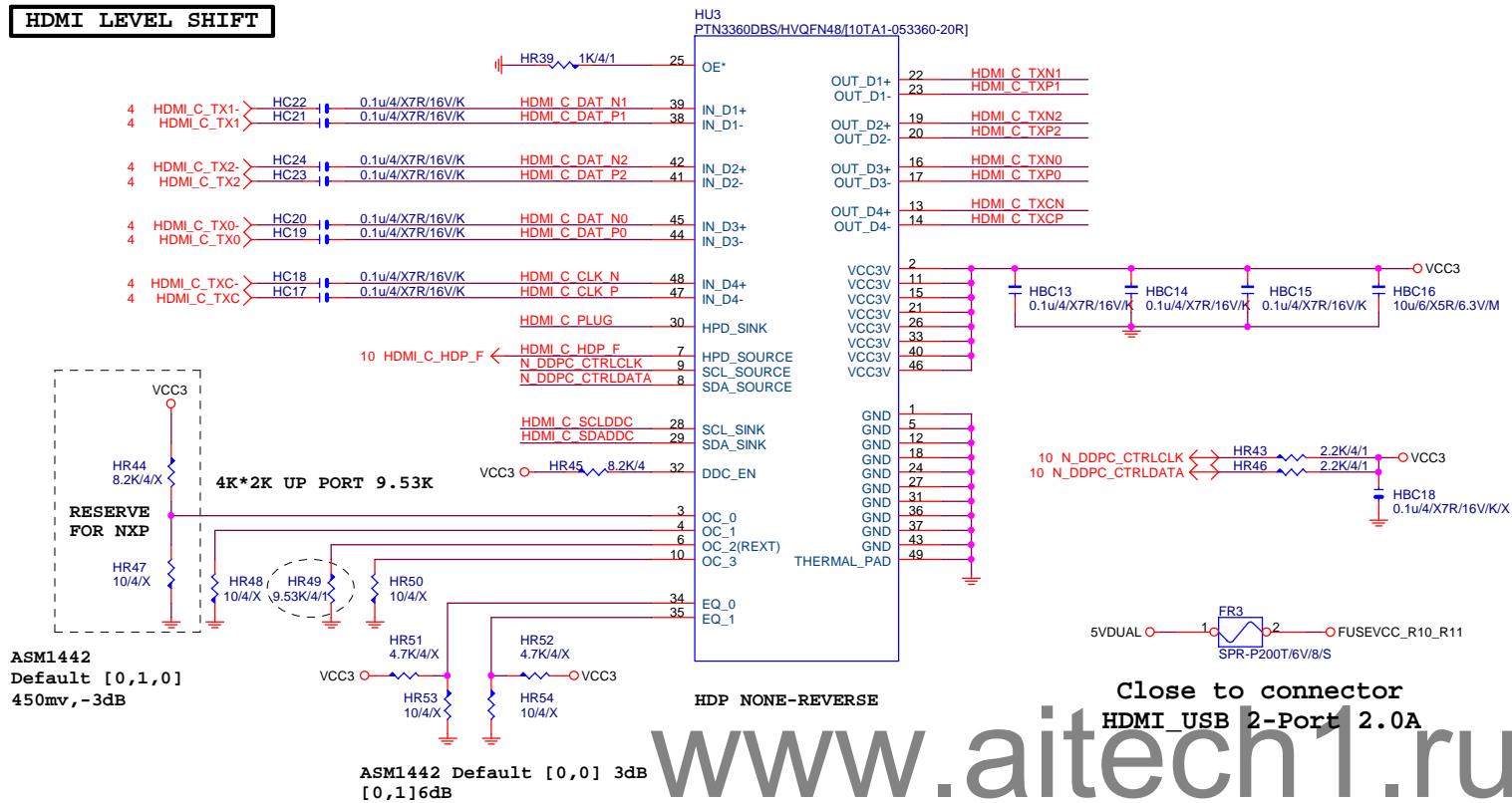
ASM1442  
DEFAULT 0/1/1 SWING:460mV -4dB

ASM1442 1 1:3dB

www.aitech1.ru

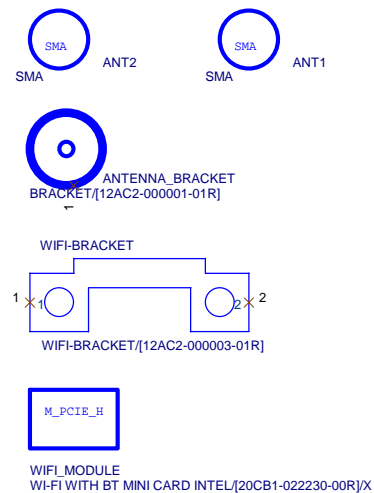
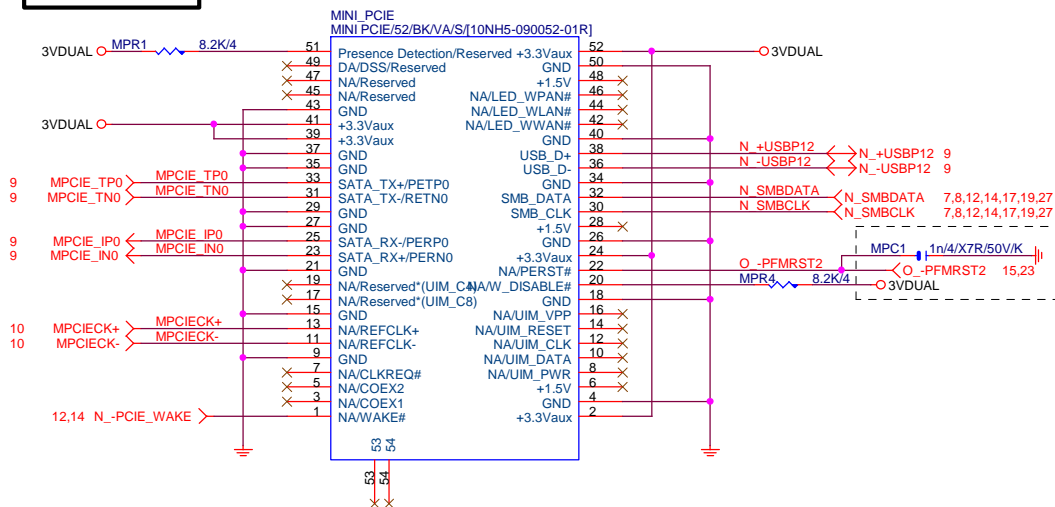
Gigabyte Technology			
Title			
DVI			
Size	Document Number	GA-B85N-Phoenix	
Custom			Rev 1.1
Date:	Thursday, December 19, 2013	Sheet	29 of 32

# HDMI LEVEL SHIFT



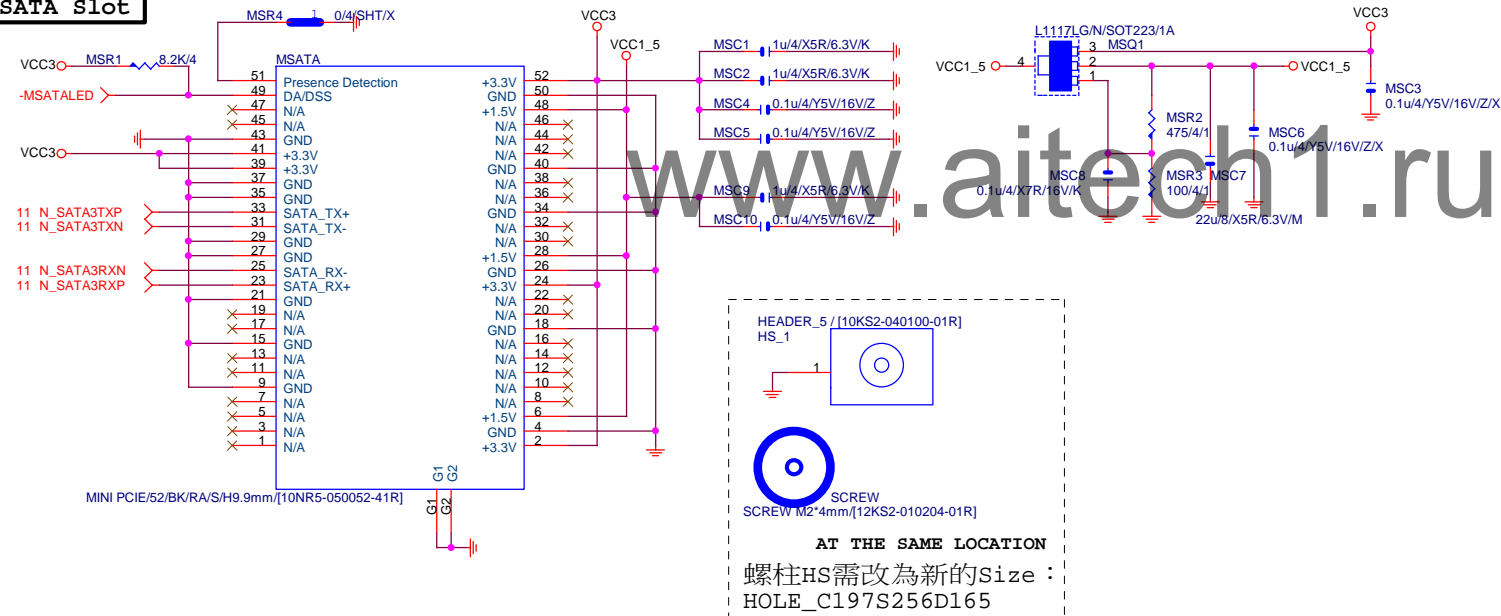
Gigabyte Technology			
Title			
HDMI + USB2.0 * 2			
Size	Document Number	GA-B85N-Phoenix	
B		Rev 1.1	
Date:	Thursday, December 19, 2013	Sheet	30 of 32

## Mini PCIe

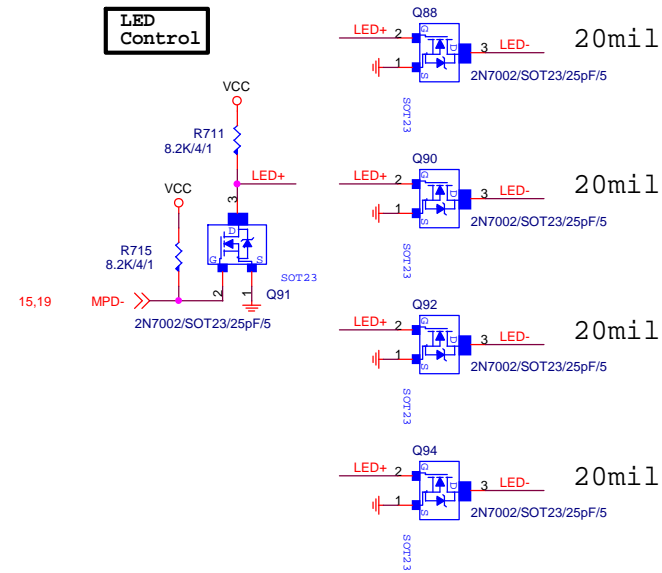
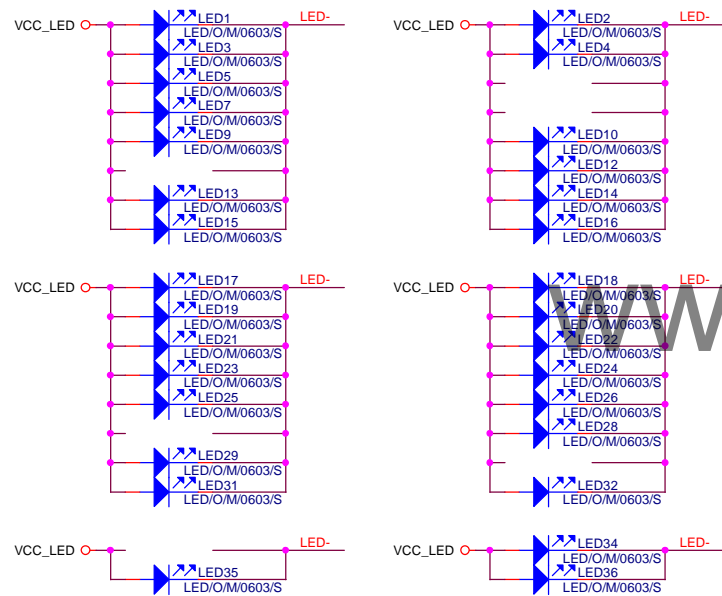
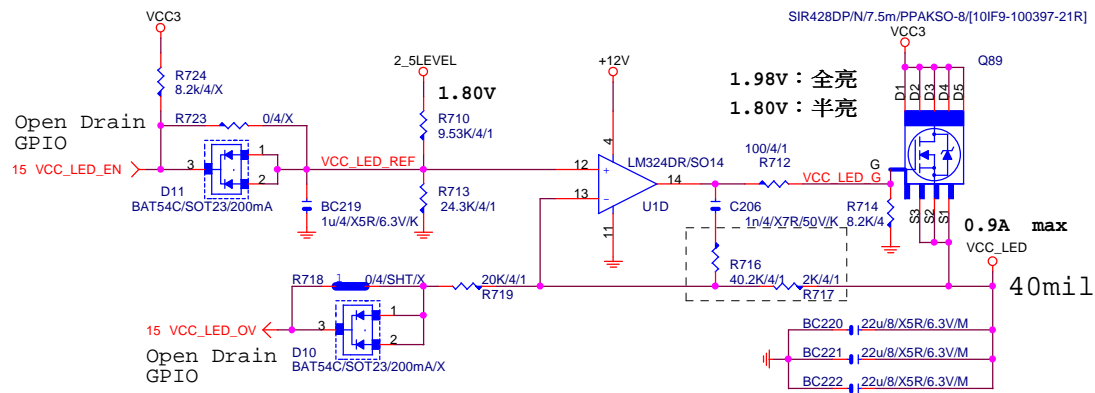


---

mSATA Slot



<h1 style="text-align: center; color: blue;">Gigabyte Technology</h1>			
Title <b>USB DAC POWER</b>			
Size B	Document Number	<b>GA-B85N-Phoenix</b>	Rev <b>1.1</b>
Date:	Thursdav, December 19, 2013	Sheet 31	of 32



www.aitech1.ru

Gigabyte Technology			
Title			
Breathing LED			
Size	Document Number	GA-B85N-Phoenix	
B		Rev	
Date:		Thursday, December 19, 2013	Sheet 32 of 32