

Model Name: TQ965MK-HP

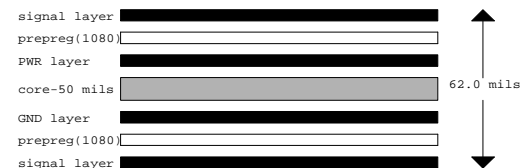
SHEET TITLE Revision 1.2

01	COVER SHEET
02	BOM & PCB MODIFY HISTORY
03	BLOCK DIAGRAM
04	TABLE LIST
05	LGA775_A
06	LGA775_B/D
07	LGA775_C
08	LGA775_E/F/G/H
09	GMCH-BROADWATER_HOST
10	GMCH-BROADWATER_DDRII
11	GMCH-BROADWATER_PCI E / DMI
12	GMCH-BROADWATER_VGA
13	GMCH-BROADWATER_GND
14	GMCH-BROADWATER_PWR
15	DDRII-CHANNEL A 1,2
16	DDRII-CHANNEL B 1,2
17	DDRII-TERMINATION
18	PCI EXPRESS*16 SLOT
19	ICH8-PCI / DMI / LAN / USB
20	ICH8-GPIO / CTRL
21	ICH8-SATA / FAN PWM
22	ICH8-PWR / GND
23	CLOCK GEN
24	PCI EXPRESS*1 / PCI SLOT 1,2
25	ITE8718F
26	COM / LPT / SYS_FAN / CPU_FAN
27	BIOS / CI / HW MONITOR / KB / MS

SHEET TITLE

28	CODEC ALC888
29	AUDIO JACK
30	VCORE PWM_ISL6326CRZ
31	DISCRETE POWER
32	ATX POWER CONNECTOR
33	JMICRON JM363 2S1P PCIE
34	R_USB
35	BROCOM BCM5787M
36	FP / F_USB / USB PWR / FDD / BZ

Broadwater chipset impedance:500+/-15%
with 4mils trace width



Gigabyte Technology

Title			Cover Sheet
Size	Document Number	TQ965MK-HP	Rev
Custom			1.2
Date:	Monday, February 12, 2007	Sheet	1 of 36

Model Name: TQ965MK-HP

Version: 1.2

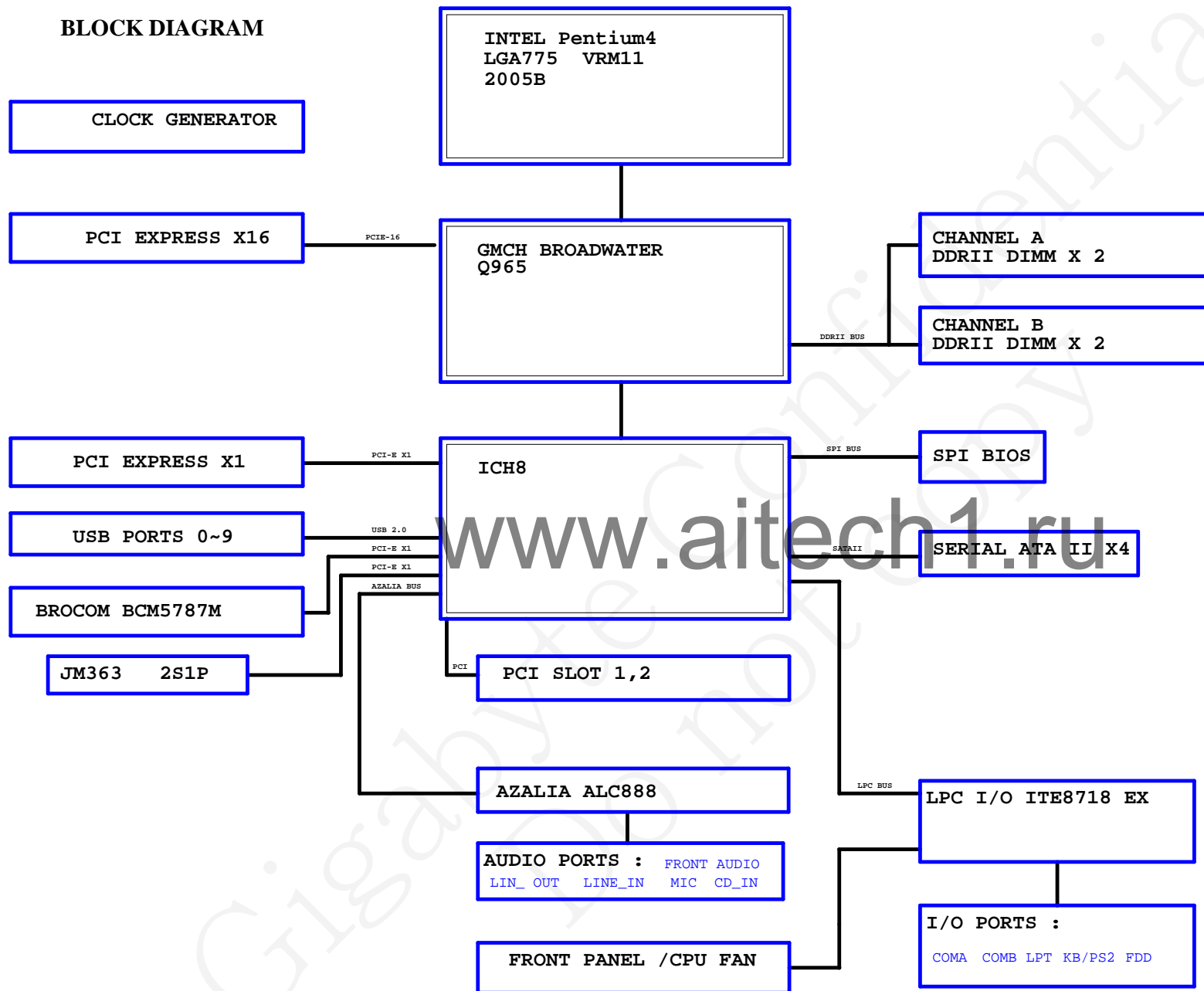
Component value change history

[illegible]

Circuit or PCB layout change
for next version

[illegible]

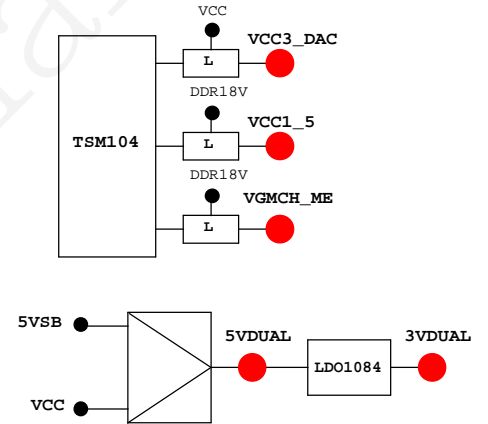
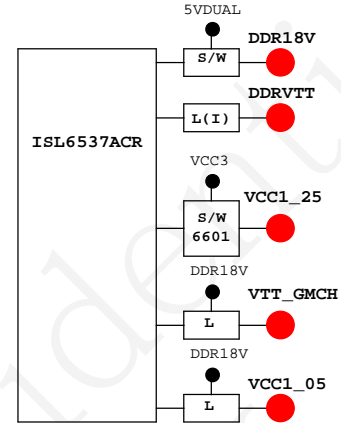
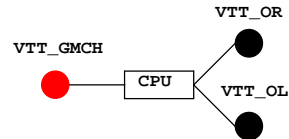
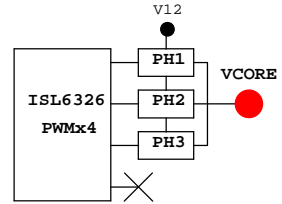
BLOCK DIAGRAM



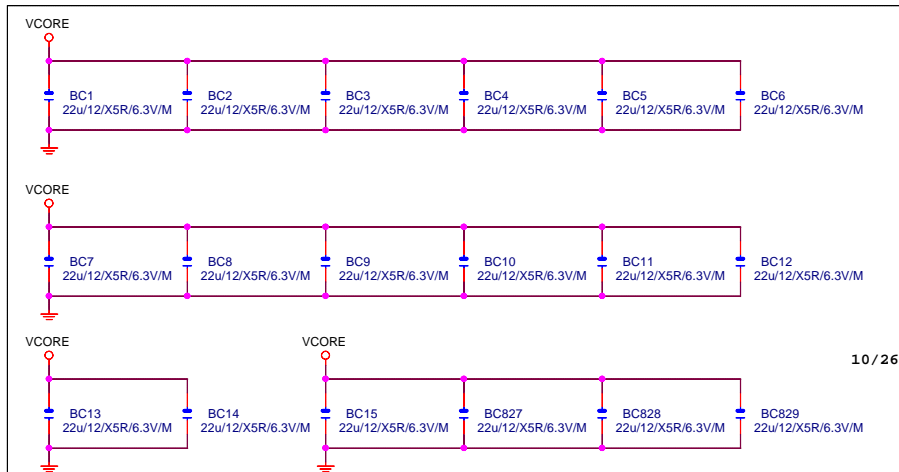
ICH8 GPIO LIST TABLE

PIN NAME	PWR WELL	AFTER/ DLTRST	USAGE	NOTE
GP0	MAIN	IN	-ACZ_DET	P/U 8.2K VCC3
GP1/TACH1	MAIN	IN	N/A	P/U 8.2K VCC3
GP2/PIRQE#	MAIN	IN	-PIRQE	P/U 8.2K VCC3
GP3/PIRQF#	MAIN	IN	-PIRQF	P/U 8.2K VCC3
GP4/PIRQG#	MAIN	IN	-PIRQG	P/U 8.2K VCC3
GP5/PIRQH#	MAIN	IN	-PIRQH	P/U 8.2K VCC3
GP6/TACH2	MAIN	IN	N/A	P/U 8.2K VCC3
GP7/TACH3	MAIN	IN	N/A	P/U 8.2K VCC3
GP8	STBY	IN	GPIO8	P/U 8.2K 3VDUAL
GP9	STBY	OUT	WOL_ONLY	P/D 100K GND
GP10	STBY	OUT	GPIO10	P/U 8.2K 3VDUAL
GP11/SMBALERT#	STBY	OUT	-SMBALRT	P/U 8.2K 3VDUAL
GP12	STBY	IN	MB_ID3	P/U 8.2K 3VDUAL
GP13	STBY	IN	-LPCFME	P/U 8.2K 3VDUAL
GP14	STBY	IN	GPIO14	P/U 8.2K 3VDUAL
GP15	STBY	OUT	GPIO15(TP)	N/A
GP16	MAIN	IN	MB_ID1	P/U 8.2K VCC3
GP17/TACH0	MAIN	IN	N/A(OPT-ITE)	P/U 8.2K VCC3
GP18	MAIN	IN	MB_ID2	P/U 8.2K VCC3
GP19	MAIN	IN	GPIO19	P/U 8.2K VCC3
GP20	MAIN	OUT	GPIO20	N/A
GP21	MAIN	IN	GPIO21	P/U 8.2K VCC3
GP22	MAIN	IN	GPIO22	P/U 8.2K VCC3
GP23	MAIN	OUT	-LDRQ1	P/U 8.2K VCC3
GP24	STBY	OUT	GPIO24(TP)	N/A
GP25	STBY	IN	MB_ID4	P/U 8.2K 3VDUAL
GP26/S4_STATE#	STBY	OUT	GPIO26	P/U 8.2K 3VDUAL
GP27	STBY	LOW	GPIO27	ENERGY-LAKE LED:GREEN
GP28	STBY	LOW	GPIO28	ENERGY-LAKE LED:YEL
GP29/OC5#	STBY	IN	-USBOC_F	P/U FUSEVCC1
GP30/OC6#	STBY	IN	-USBOC_F	P/U FUSEVCC1
GP31/OC7#	STBY	IN	-USBOC_F	P/U FUSEVCC1
GP32	MAIN	IN	MB_ID0	P/U 8.2K VCC3
GP33	MAIN	IN	GPIO33	P/U 8.2K VCC3
GP34	MAIN	IN	GPIO34	P/U 8.2K VCC3
GP35	MAIN	IN	N/A(TP)	N/A
GP36	MAIN	IN	GPIO36	P/U 8.2K VCC3
GP37	MAIN	IN	GPIO37	P/U 8.2K VCC3
GP38	MAIN	IN	GPIO38	P/U 8.2K VCC3
GP39	MAIN	IN	GPIO39	P/D 8.2K GND
GP48	MAIN	IN	GPIO48	P/U 8.2K VCC3
GP49	MAIN	IN	CPUPWROK	P/U 100 VTT_OL

VCORE:3 PHASE PWM--ISL6326



Gigabyte Technology			
Title			
TABLE LIST			
Size B	Document Number		Rev
	TQ965MK-HP		1.2
Date:	Monday, February 12, 2007		Sheet 4 of 36

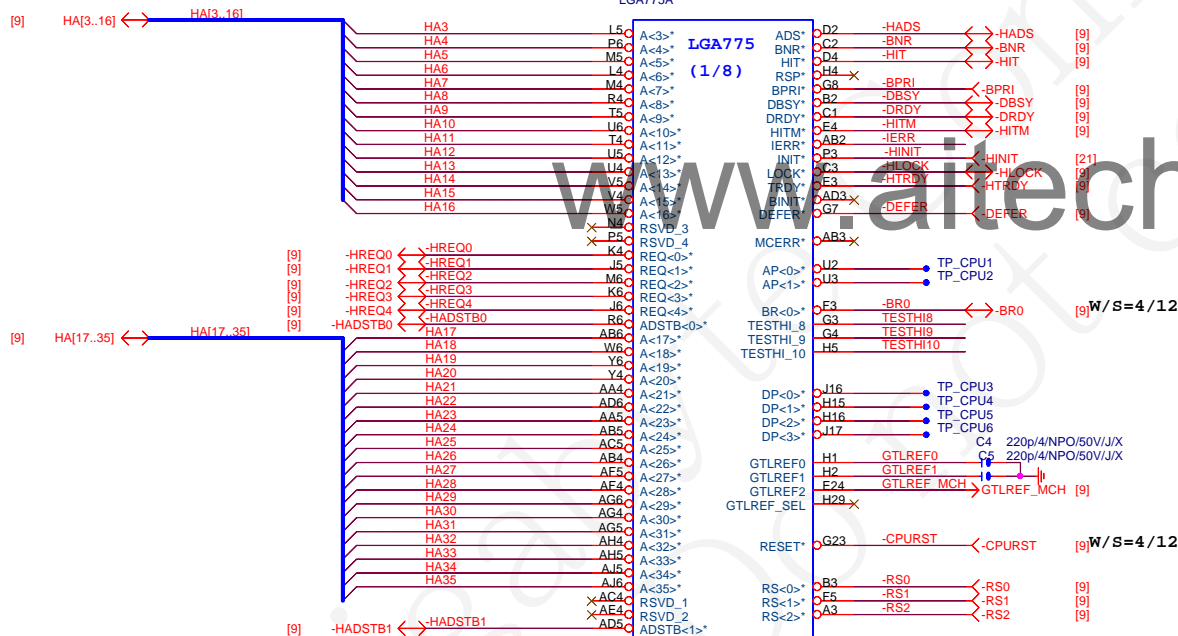


10/26 for FMB2005A

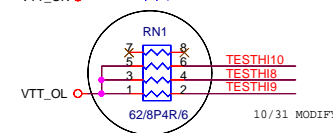
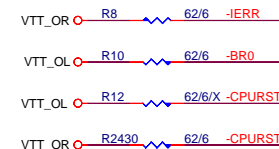
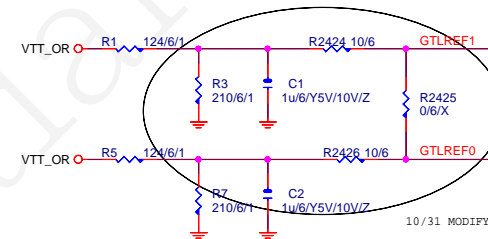
LGA775-D: FOOTPRINT

LGA775A

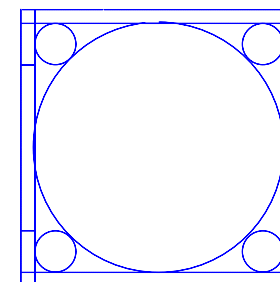
LGA775
(1/8)



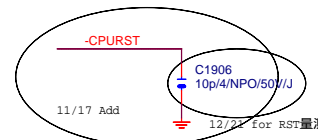
CPU-SK/775/S/15



CR
CPU RETENTIONX



HOST 4X SIGNAL:W/S=4/14 to Dx#,DBIx#;W/S=4/25 to Strobe
HOST 2X SIGNAL:W/S=4/14 to HAx#,REQx#;W/S=4/17 to Strobe
HOST 1X SIGNAL:W/S=4/14



Gigabyte Technology			
Title			
LGA775-A			
Size	Document Number	Rev	
B	TQ965MK-HP	1.2	
Date:	Monday, February 12, 2007	Sheet	5 of 36

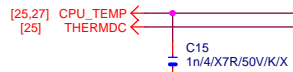


Trace width doesn't
less than 12 Mil

As close as possible to
CPU socket

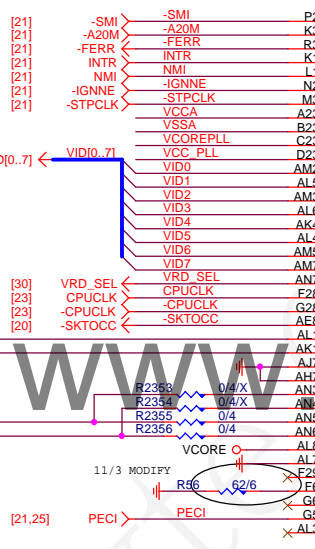
W/S=4/6

W/S=10/10

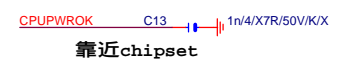


W/S=4/10

[30] VCC_SENSE
[30] VSS_SENSE

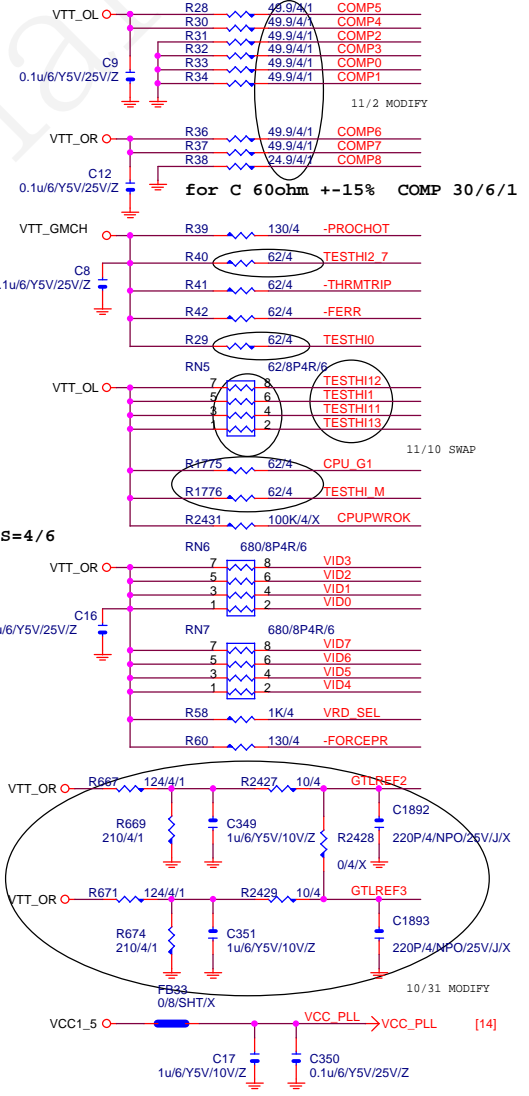


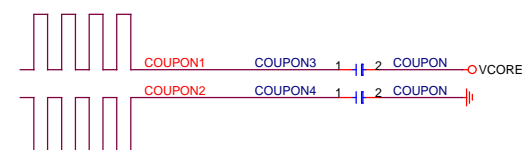
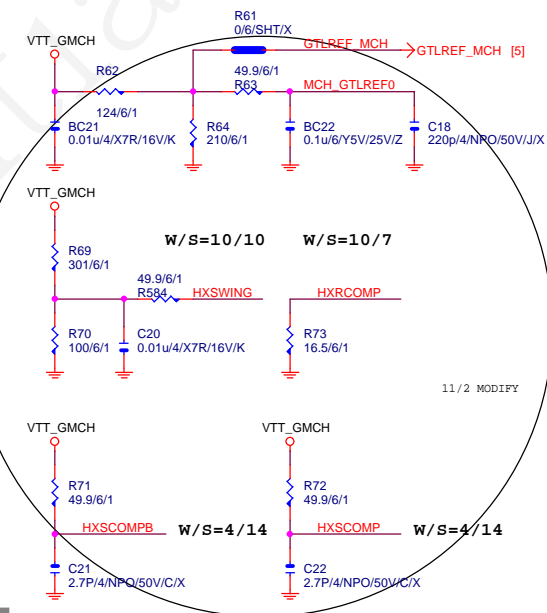
COMP[8]:W/S=15/7-->LS;W/S=15/14-->HS
COMP[7..0]:W/S=10/7-->LS;W/S=10/14-->HS



PECI:Platform Environment Control Interface

Place outside of CPU socket





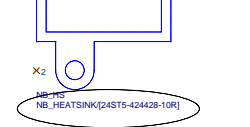
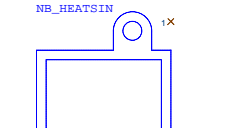
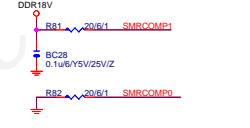
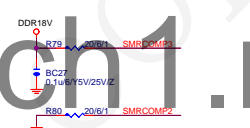
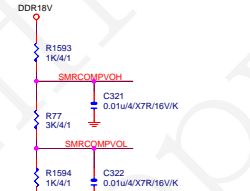
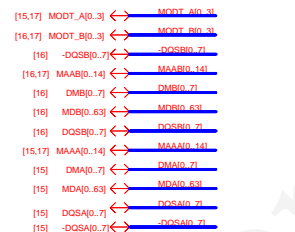
Gigabyte Technology

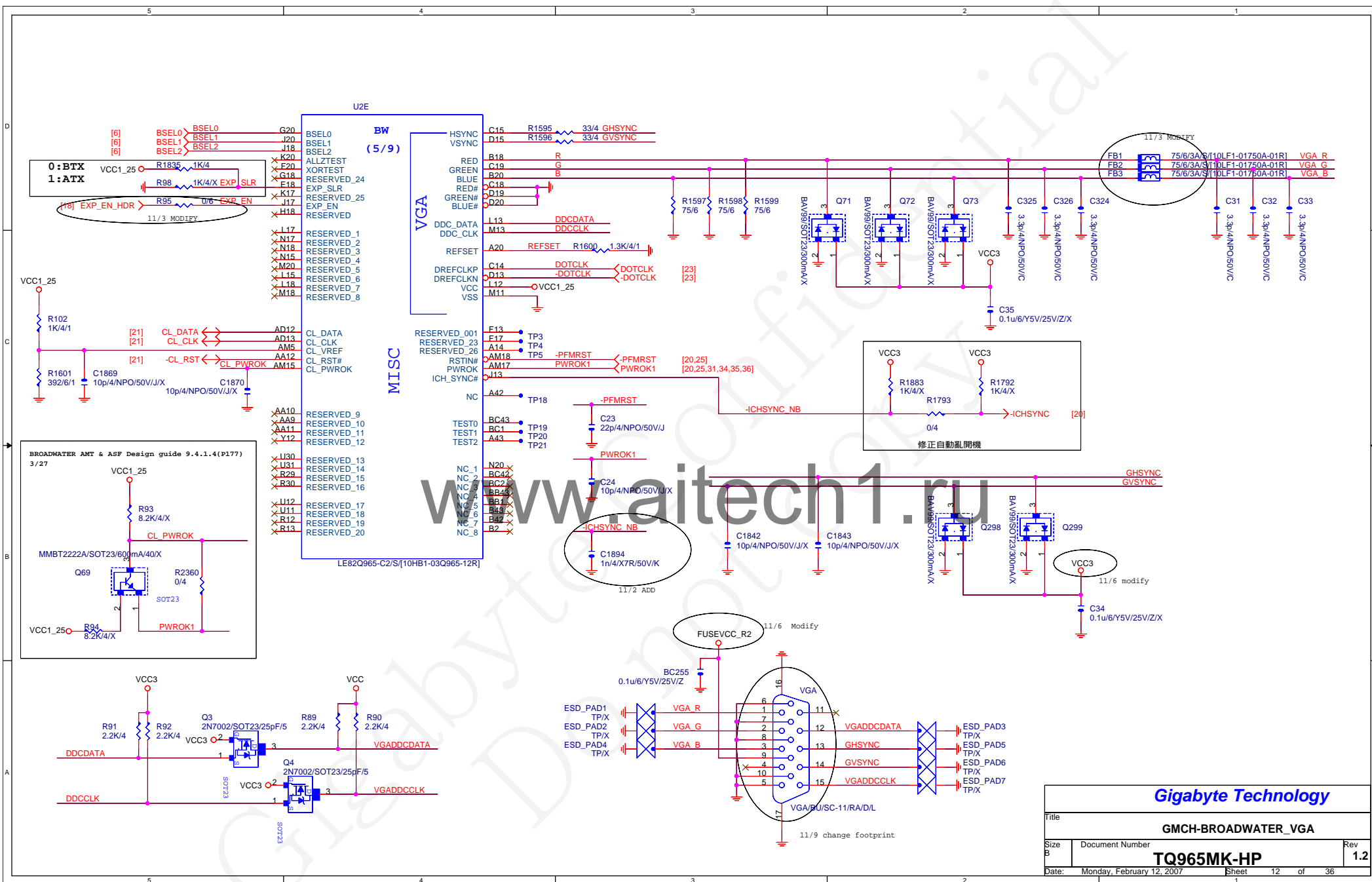
Size	Document Number
------	-----------------

Size B Document Number **TQ965MK-HP**

Date: Monday, February 12, 2007 Sheet 9 of 36

[illegible]





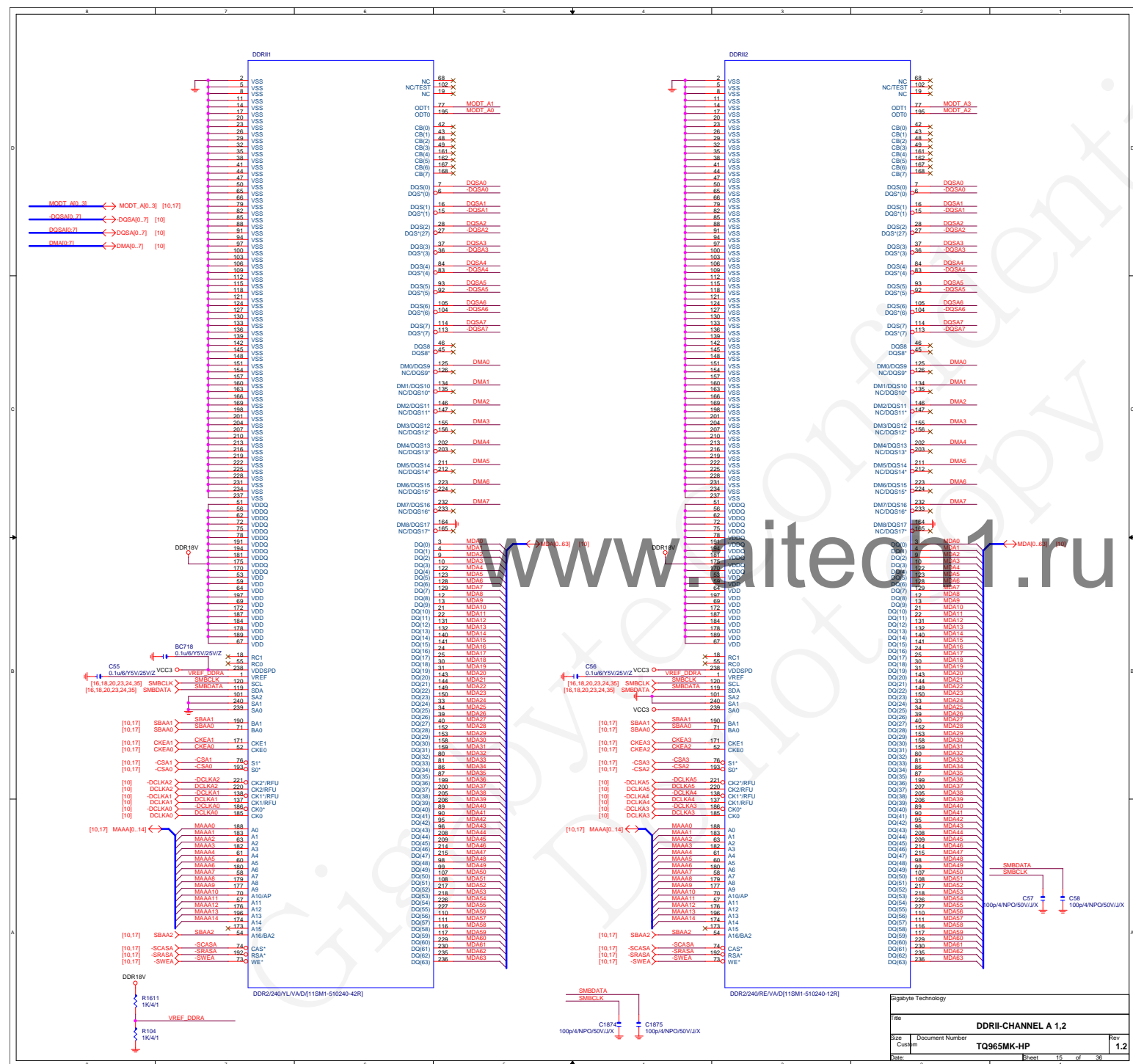
U2G		
BC37	VSS_1	BW
BC32	VSS_2	(7/9)
BC28	VSS_3	
BC24	VSS_4	
BC10	VSS_5	GND 1/2
BC5	VSS_6	
BB7	VSS_7	
AY41	VSS_8	
AY4	VSS_9	
AW43	VSS_10	
AW41	VSS_11	
AW1	VSS_12	
AV37	VSS_13	
AV35	VSS_14	
AV27	VSS_15	
AV23	VSS_16	
AV21	VSS_17	
AV17	VSS_18	
AV11	VSS_19	
AV9	VSS_20	
AV7	VSS_21	
AU42	VSS_22	
AU36	VSS_23	
AU32	VSS_24	
AU24	VSS_25	
AU20	VSS_26	
AU6	VSS_27	
AU2	VSS_28	
AT31	VSS_29	
AT29	VSS_30	
AT15	VSS_31	
AT13	VSS_32	
AT12	VSS_33	
AR38	VSS_34	
AR33	VSS_35	
AR32	VSS_36	
AR27	VSS_37	
AR26	VSS_38	
AR23	VSS_39	
AR21	VSS_40	
AR20	VSS_41	
AR17	VSS_42	
AR9	VSS_43	
AR6	VSS_44	
AP43	VSS_45	
AP24	VSS_46	
AP18	VSS_47	
AP1	VSS_48	
AN38	VSS_49	
AN31	VSS_50	
AN29	VSS_51	
AN24	VSS_52	
AN23	VSS_53	
AN20	VSS_54	
AN15	VSS_55	
AN13	VSS_56	
AN12	VSS_57	
AN11	VSS_58	
AN4	VSS_59	
AM42	VSS_60	
AM40	VSS_61	
AM36	VSS_62	
AM33	VSS_63	
AM29	VSS_64	
AM24	VSS_65	
AM23	VSS_66	
AM20	VSS_67	
AM11	VSS_68	
AM9	VSS_69	
AM7	VSS_70	
AM4	VSS_71	
AM2	VSS_72	
AM1	VSS_73	
AL36	VSS_74	
AL33	VSS_75	
AK43	VSS_76	
AJ39	VSS_77	
AJ36	VSS_78	
AJ33	VSS_79	
AH42	VSS_80	
AG37	VSS_81	
AG34	VSS_82	
AF43	VSS_83	
AF37	VSS_84	
AF36	VSS_85	
AF10	VSS_86	
AF9	VSS_87	
AF8	VSS_88	
AF7	VSS_89	
AF6	VSS_90	

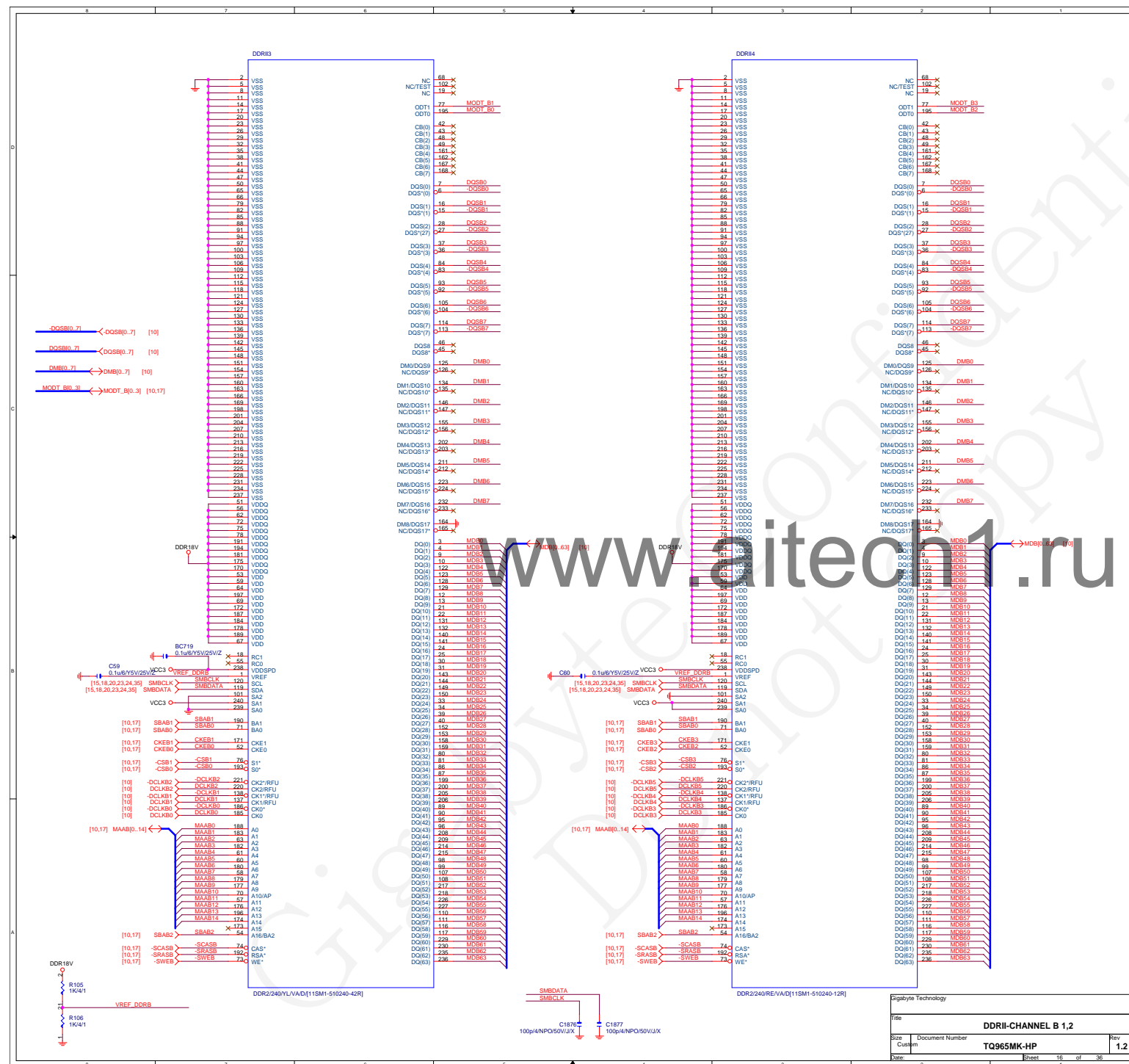
LE82Q965-C2/S/[10HB1-03Q965-12R]

U2I		
M27	VSS_91	BW
M21	VSS_92	(9/9)
M17	VSS_93	
M15	VSS_94	GND 2/2
M10	VSS_95	
M7	VSS_96	
M1	VSS_97	
L33	VSS_98	
L32	VSS_99	
L31	VSS_100	
AD23	VSS_101	
L21	VSS_102	
L20	VSS_103	
L11	VSS_104	
L7	VSS_105	
L5	VSS_106	
L3	VSS_107	
K43	VSS_108	
K26	VSS_109	
K21	VSS_110	
K18	VSS_111	
K13	VSS_112	
K12	VSS_113	
K2	VSS_114	
J38	VSS_115	
J35	VSS_116	
J32	VSS_117	
J27	VSS_118	
J21	VSS_119	
J9	VSS_120	
J7	VSS_121	
J5	VSS_122	
H31	VSS_123	
H29	VSS_124	
H21	VSS_125	
H20	VSS_126	
H17	VSS_127	
H15	VSS_128	
H13	VSS_129	
G42	VSS_130	
G38	VSS_131	
G32	VSS_132	
G21	VSS_133	
G13	VSS_134	
G12	VSS_135	
G11	VSS_136	
G9	VSS_137	
G7	VSS_138	
G1	VSS_139	
F37	VSS_140	
F35	VSS_141	
F27	VSS_142	
F21	VSS_143	
F19	VSS_144	
F3	VSS_145	
E43	VSS_146	
E32	VSS_147	
E24	VSS_148	
E21	VSS_149	
E20	VSS_150	
E15	VSS_151	
E13	VSS_152	
E11	VSS_153	
E9	VSS_154	
E3	VSS_155	
D40	VSS_156	
D31	VSS_157	
D21	VSS_158	
D17	VSS_159	
D3	VSS_160	
C26	VSS_161	
C11	VSS_162	
C6	VSS_163	
C5	VSS_164	
C4	VSS_165	
B37	VSS_166	
B32	VSS_167	
B31	VSS_168	
B26	VSS_169	
B23	VSS_170	
B22	VSS_171	
B19	VSS_172	
B14	VSS_173	
B10	VSS_174	
A39	VSS_175	
A34	VSS_176	
A26	VSS_177	
A18	VSS_178	
A12	VSS_179	
A7	VSS_180	

LE82Q965-C2/S/[10HB1-03Q965-12R]

Gigabyte Technology		
Title		
GMCH-BROADWATER_GND		
Size	Document Number	Rev
Custom	TQ965MK-HP	1.2
Date:	Monday, February 12, 2007	Sheet 13 of 36

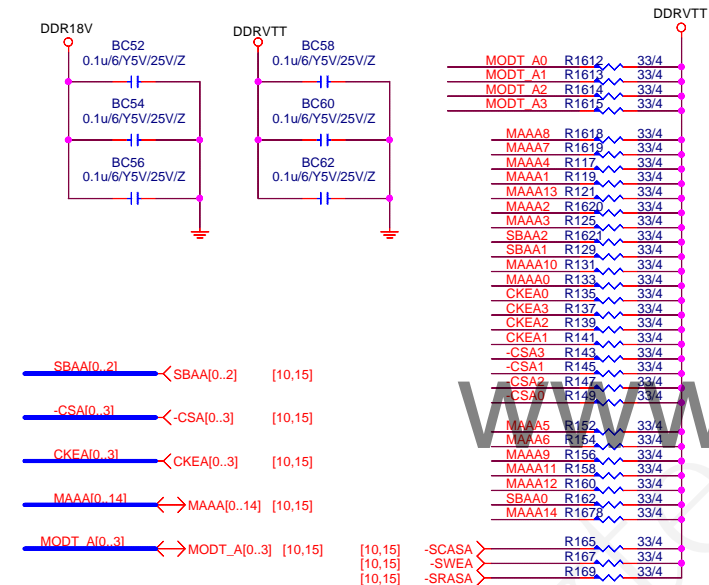




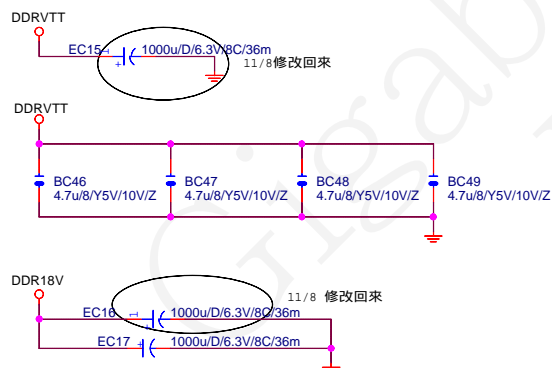
DDR TERMINATION CHANNEL A

DDR18V Decouple

DDRVTT Decouple



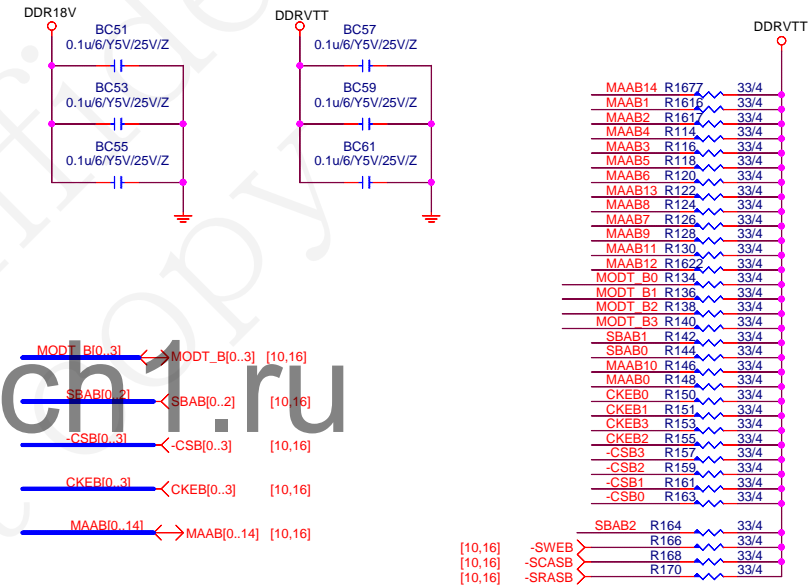
DDRVTT Decouple



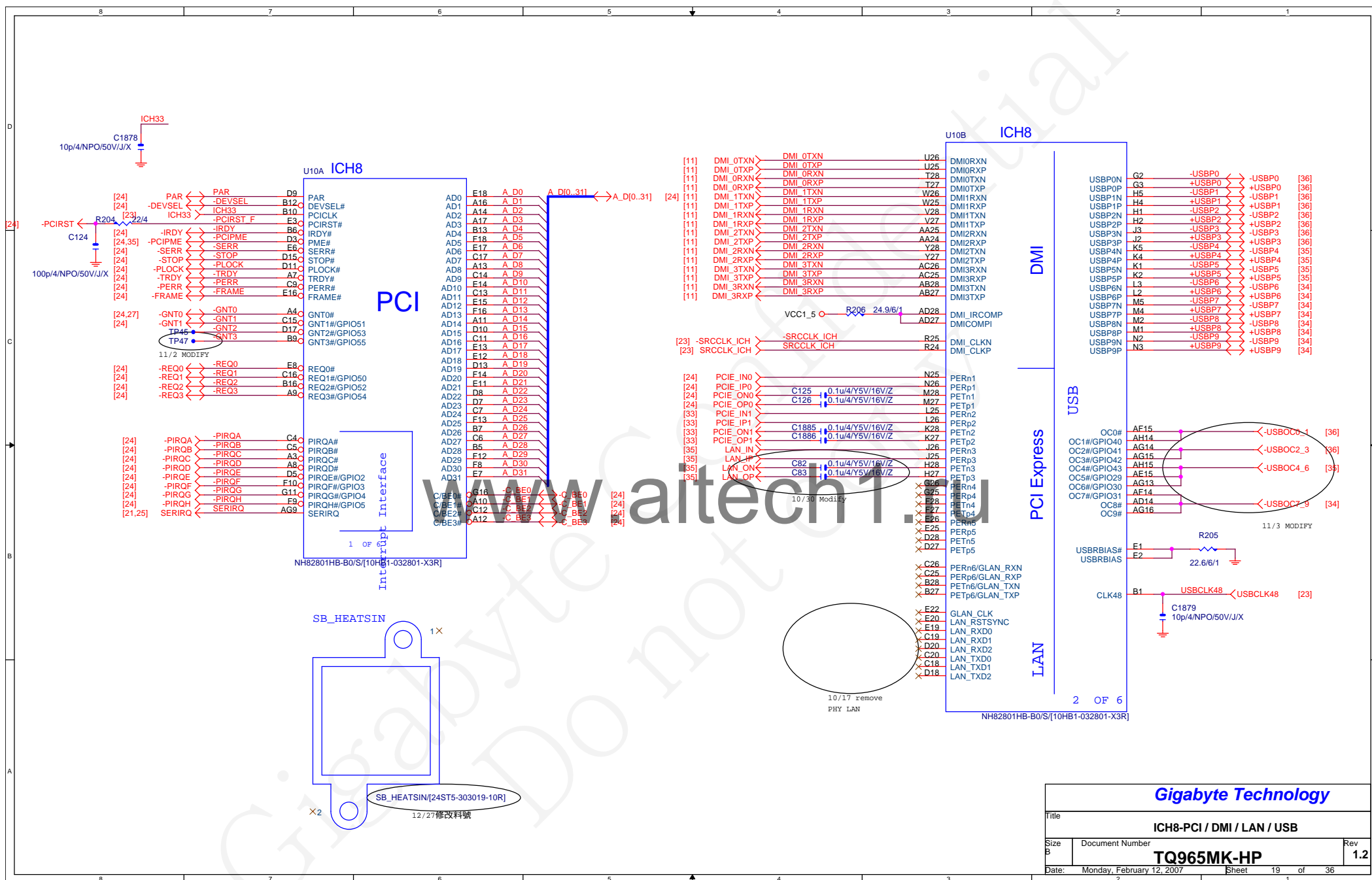
DDR TERMINATION CHANNEL B

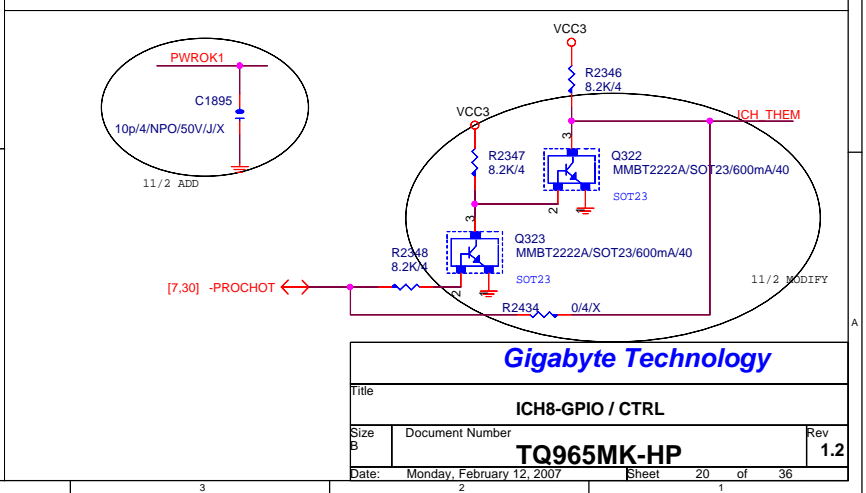
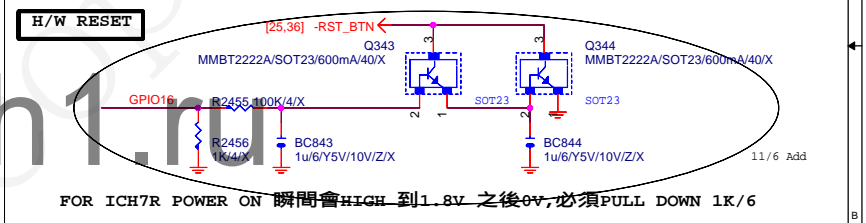
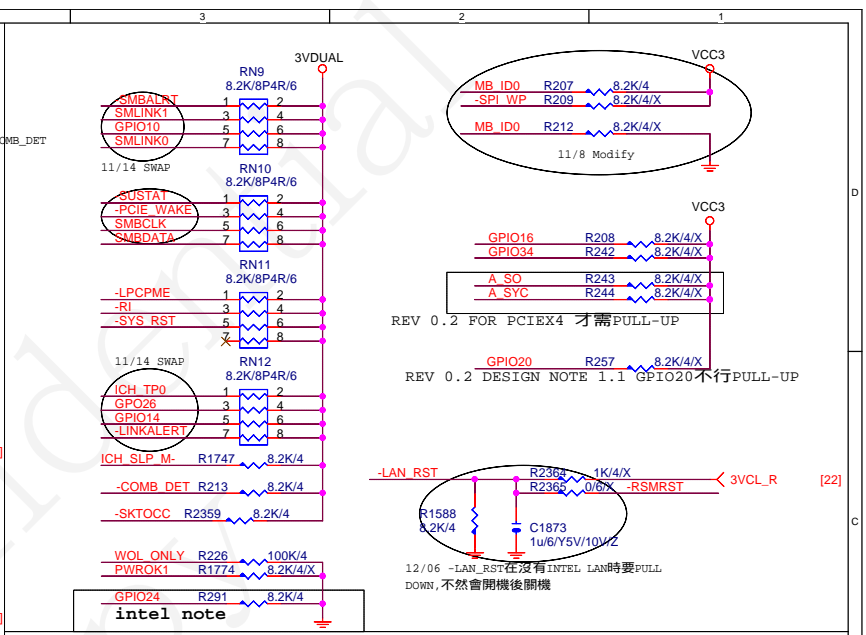
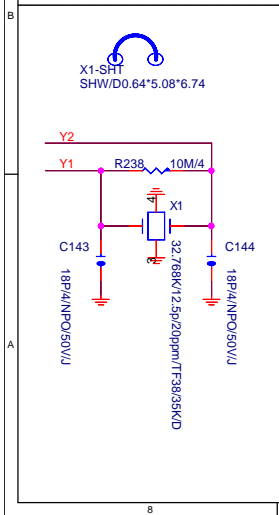
DDR18V Decouple

DDRVTT Decouple

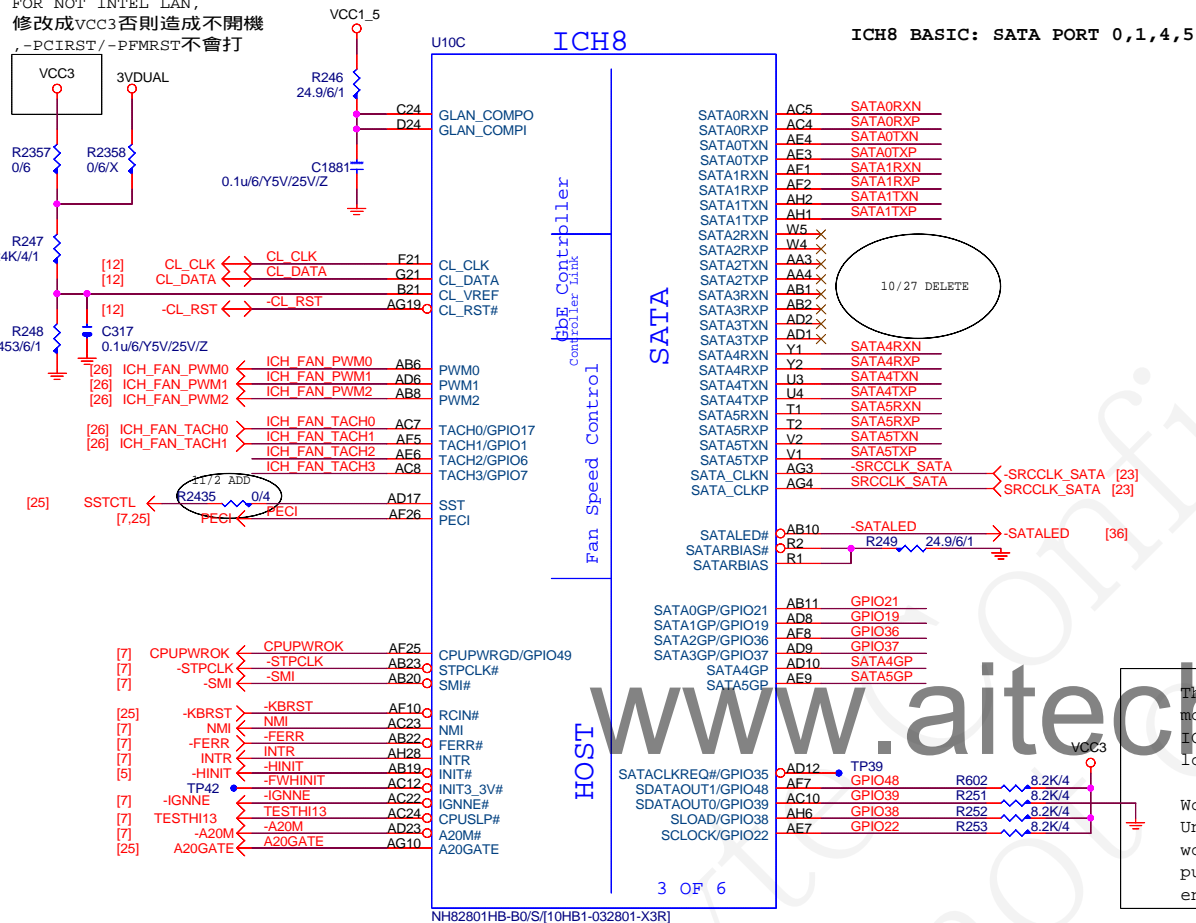


Gigabyte Technology			
Title DDRII-TERMINATION			
Size Custom	Document Number TQ965MK-HP		Rev 1.2
Date:	Monday, February 12, 2007	Sheet	17 of 36

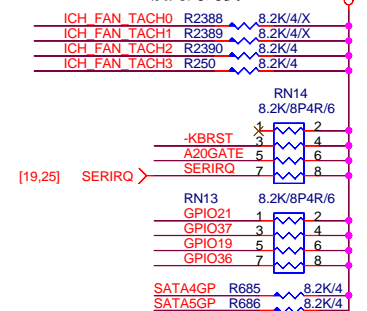




FOR NOT INTEL LAN,
修改成VCC3否則造成不開機
-PCIRST/-PFMRST不會打

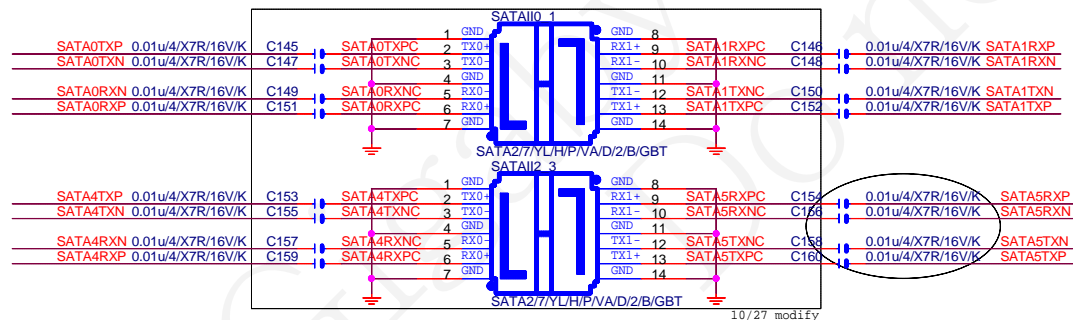


ICH8 FAN CTRL 沒用到的 P.H



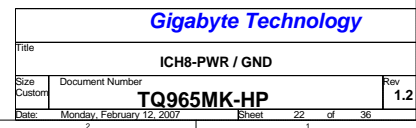
The ICH8 integrated GbE LAN test mode is activated any time the ICH8 GPIO39 signal is not at a low logic level.

Workaround
Under investigation. Possible workaround is to use a weak pulldown resistor on GPIO39 to ensure signal is always low



Gigabyte Technology

Title			
ICH8-SATA / FAN PWM			
Size	Document Number		Rev
Custom	TQ965MK-HP		1.2
Date:	Monday, February 12, 2007	Sheet	21 of 36



Title			
CLK GEN			
Size Custom	Document Number	TQ965MK-HP	Rev 1.2
Date:	Monday, February 12, 2007	Sheet 23 of 36	

Case Open Circuits

[illegible]

SPI BIOS

only use 8K

BIOS MX25L8005M2C-15G/S

CS# 1 CS# VDD .8

SPI MISO 2 SO HOLD# 7 -SPI HOLD

-SPI_WP -SPI WP 3 WP# SCK 6 -SPI CLK

4 VSS SI 5 SPI MOSI

MAIN BIOS

VCC3 3VDUAL

R2368 0/6

R2369 0/6/X

BC259 1u6/Y5V/10WZ

BC260 0.1u6/Y5V/25V/Z

11/7 MODIFY

3VDUAL

VCC3

ICH_SPI_MISO >> R1785 22/4 SPI MISO

ICH_SPI_CLK >> R2401 22/4 SPI_CLK

ICH_SPI_MOSI >> R2403 22/4 SPI MOSI

3VDUAL

ICH_SPI MISO 2 R1N146

-SPI HOLD 4 3

ICH_SPI MOSI 6 5

8.2K/8P4R/6

3VDUAL

-SPI_CS0 >> -SPI_CS0 R1784 8.2K/4

-SPI_WP >> R2437 8.2K/4

3VDUAL

PCI_BT1 PH1*2/BK/2.54V/A/D/X

4R88 1K/4/X

R1654 8.2K/4

3VDUAL

PCI_BT2 PH1*2/BK/2.54V/A/D/X

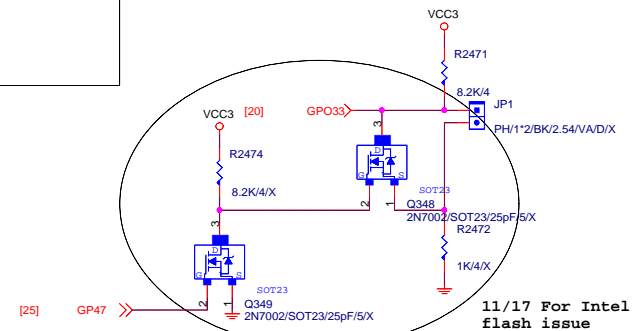
4R89 1K/4/X

3VDUAL

-GNT0 >> -SPI_CS1 >> -SPI_CS1

3VDUAL

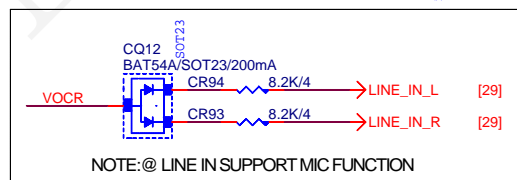
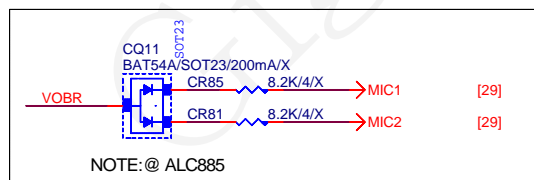
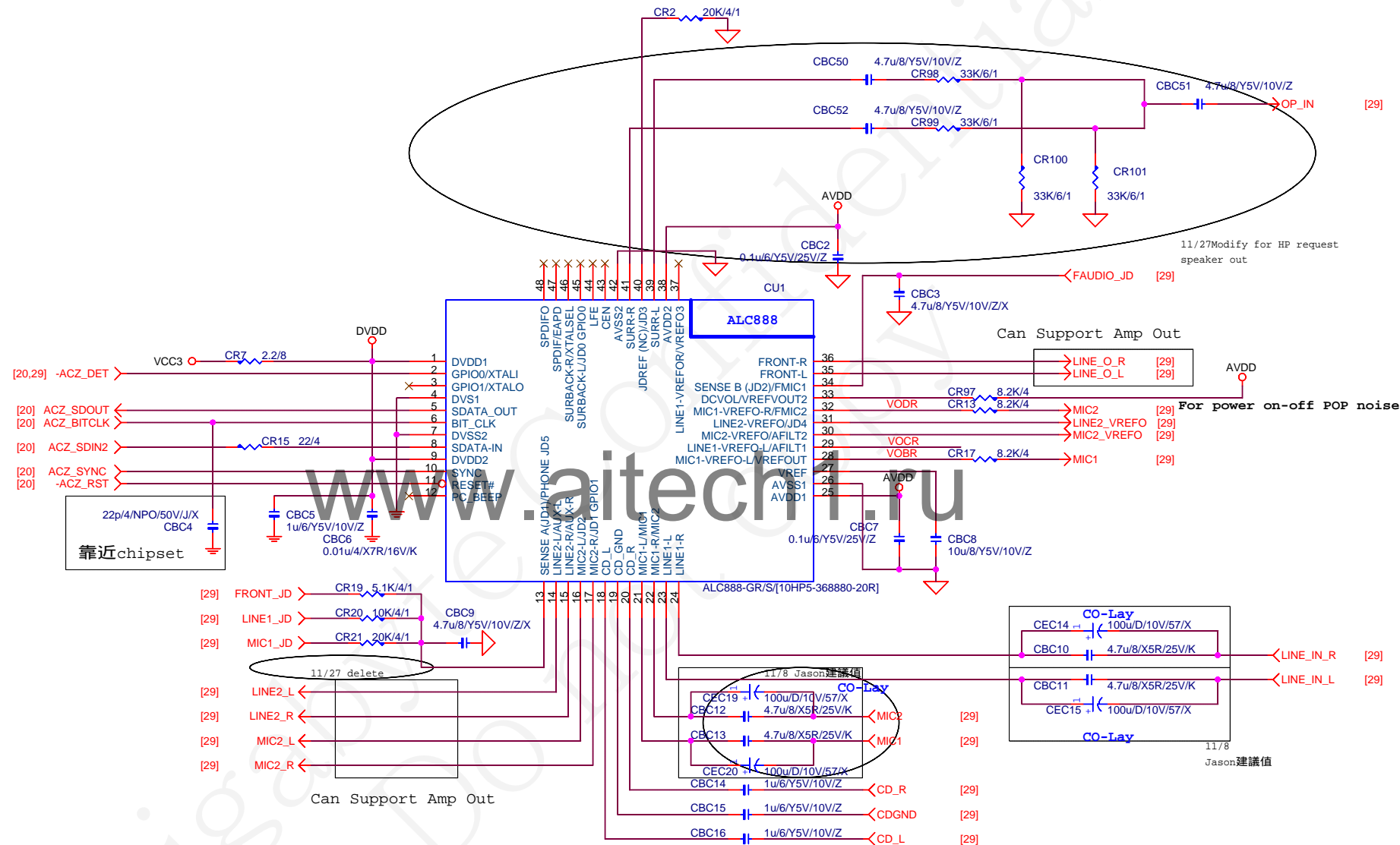
BOOT DEVICE	GNT0	CS1
SPI	0	X
PCI	1	0
FWH	1	1

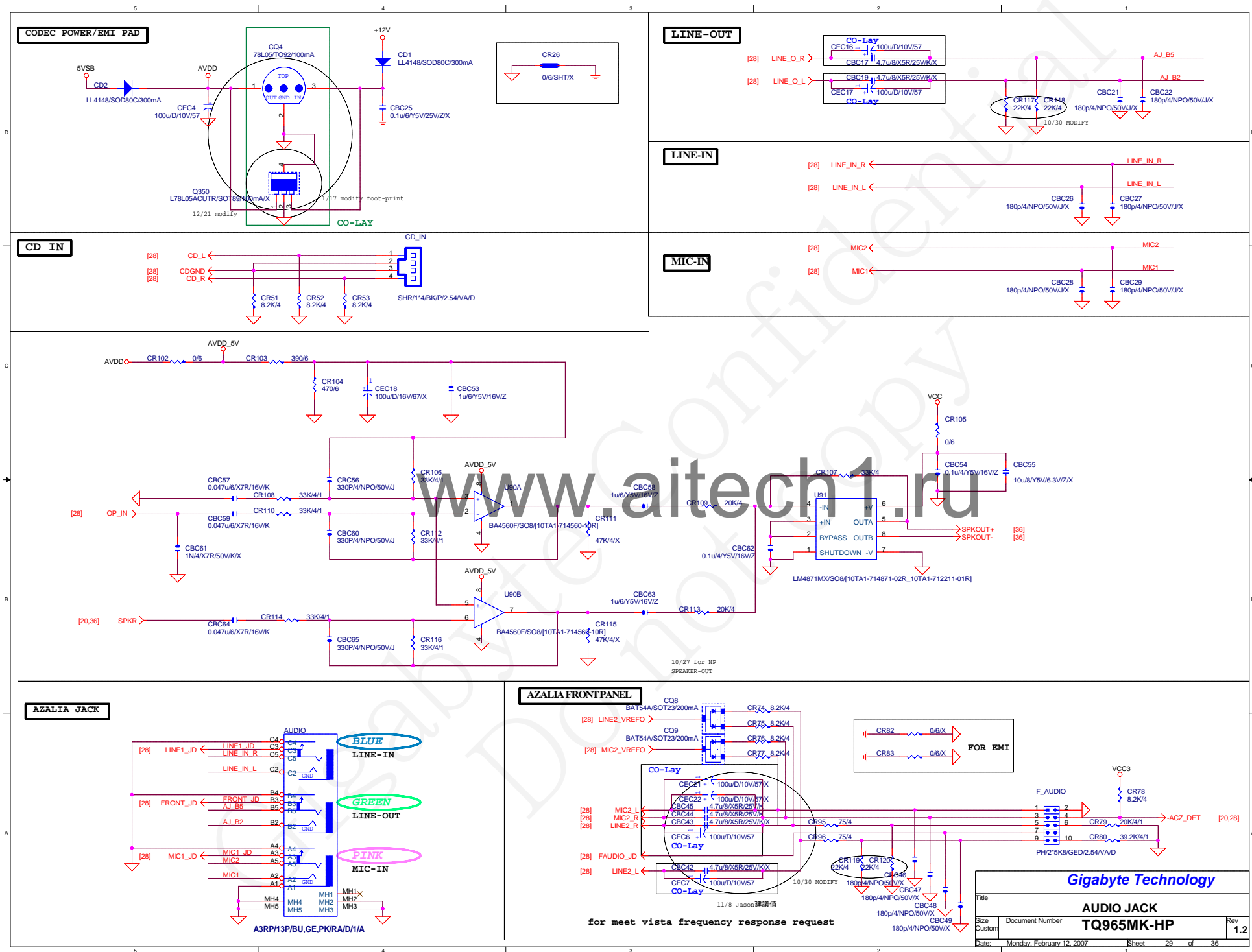


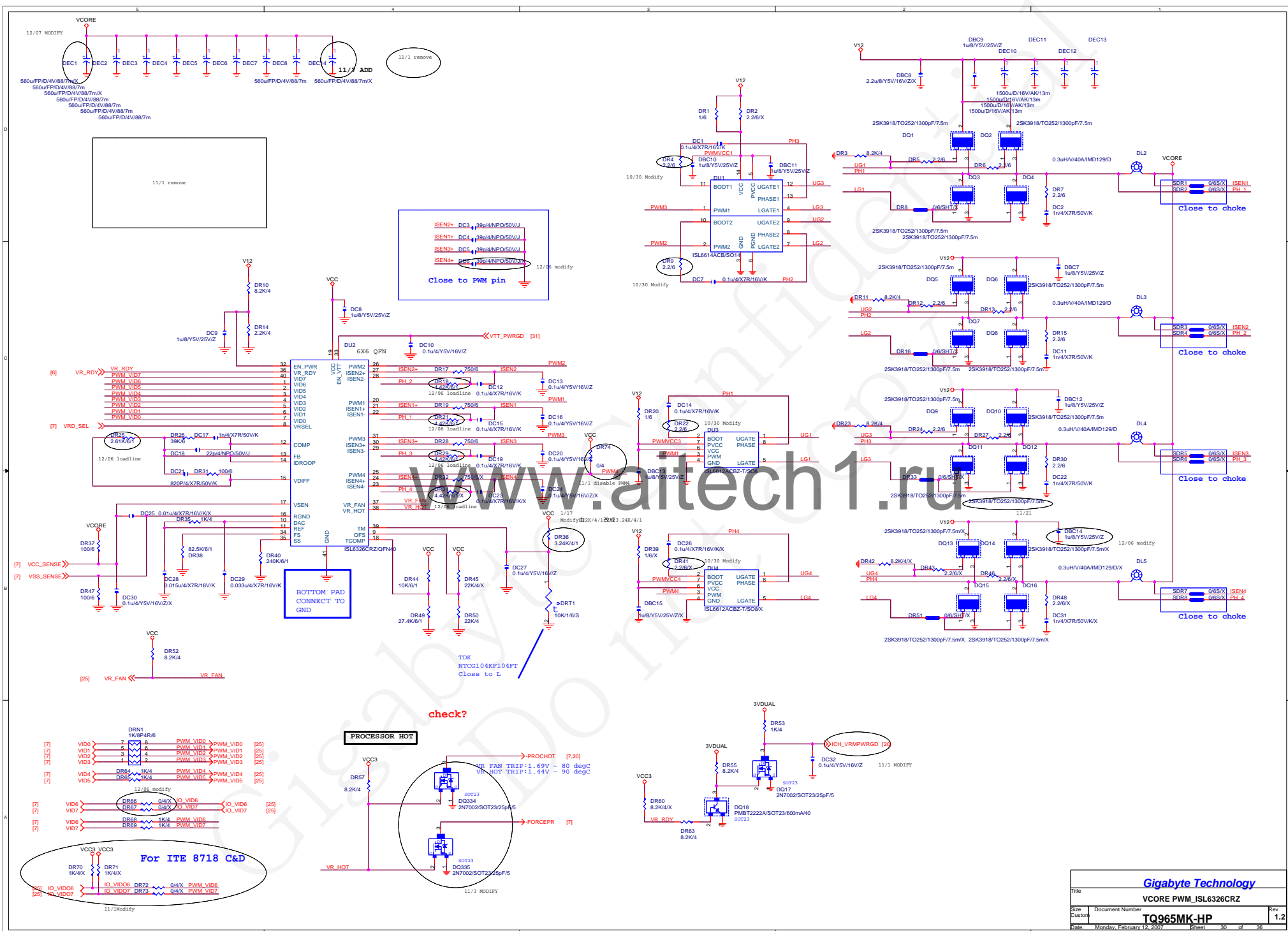
Gigabyte Technology

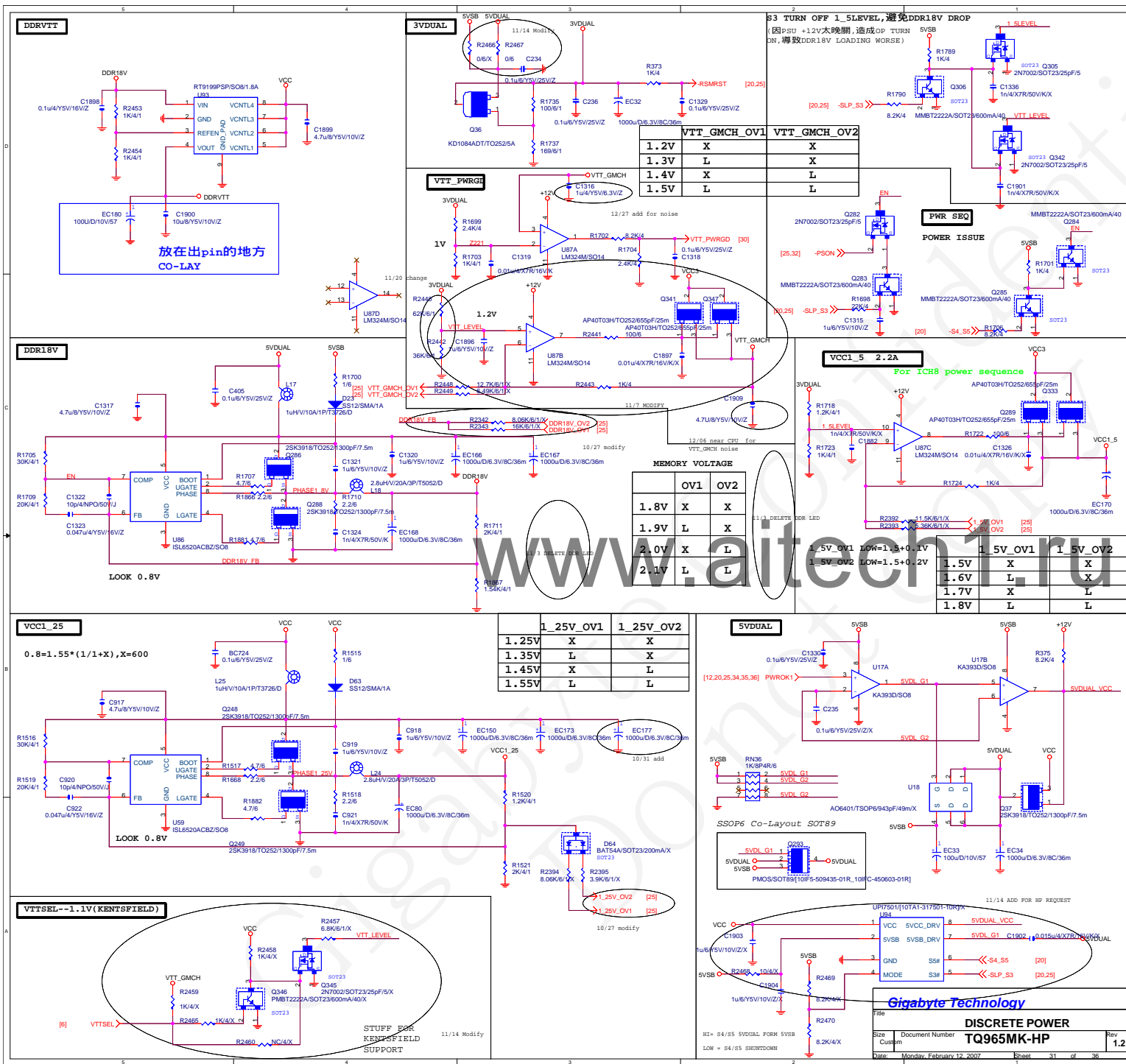
Title		
BIOS / CI / HW MONITOR / KB / MS		
Size B	Document Number	Rev
	TQ965MK-HP	1.2
Date:	Monday, February 12, 2007	Sheet 27 of 36

AZALIA CODEC

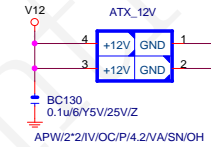
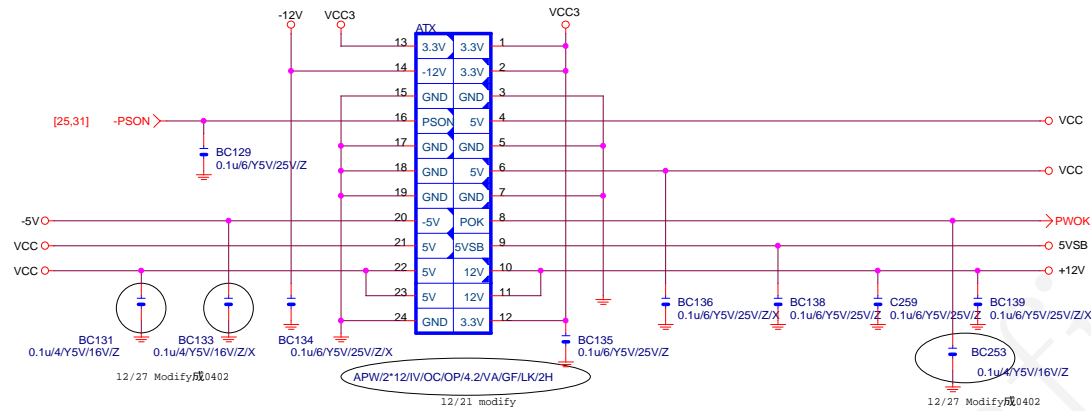






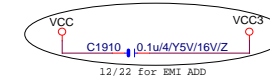
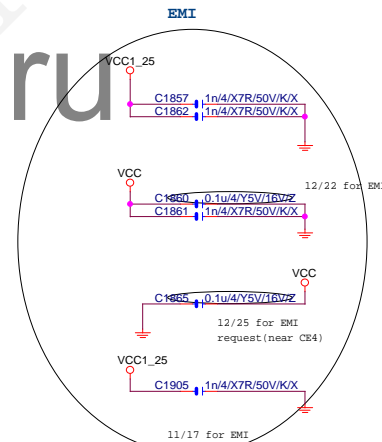
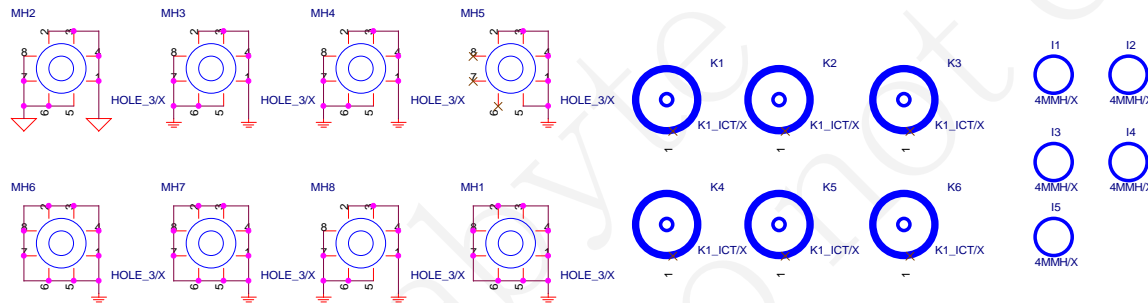


ATX POWER CONNECTOR



10/30 delete

www.aitech1.ru

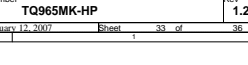
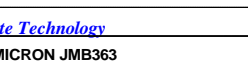
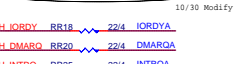
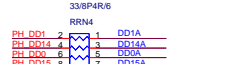
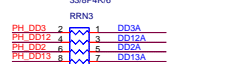
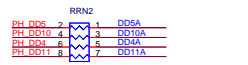
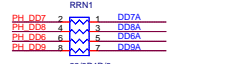
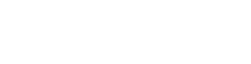
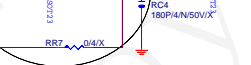
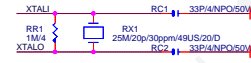
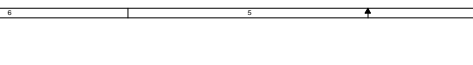
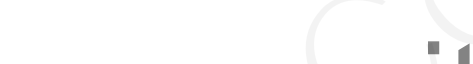
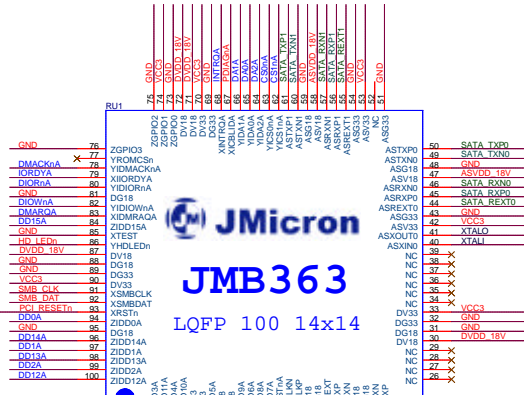
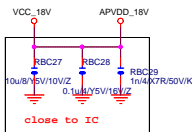
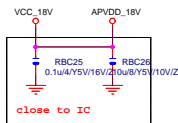
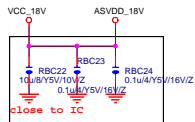
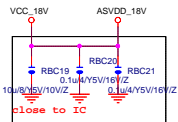
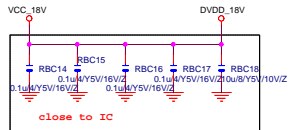
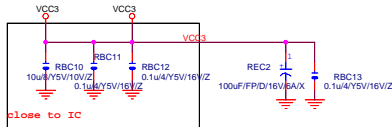
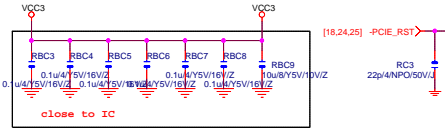
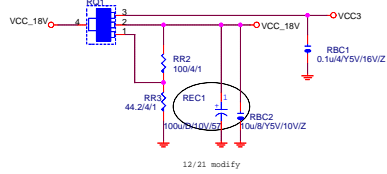


Gigabyte Technology

Title		
ATX POWER CONNECTOR		
Size	Document Number	Rev
B	TQ965MK-HP	1.2
Date:	Monday, February 12, 2007	Sheet 32 of 36

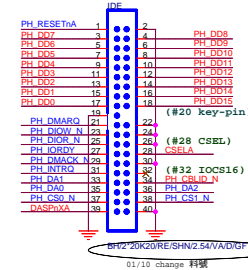
3.3V to 1.8V Voltage Regulator

AMC1117SK/SOT223/0.8A

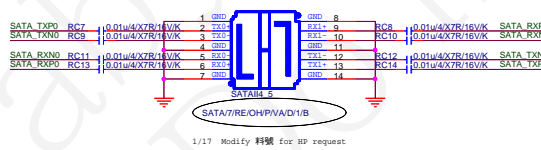


www.aitech1.ru

IDE Connector

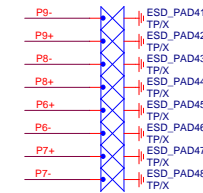
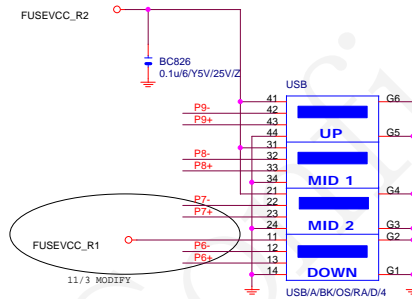
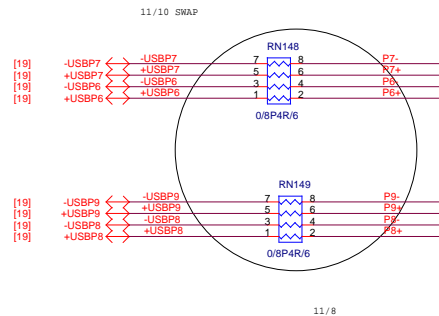


SATA Connector

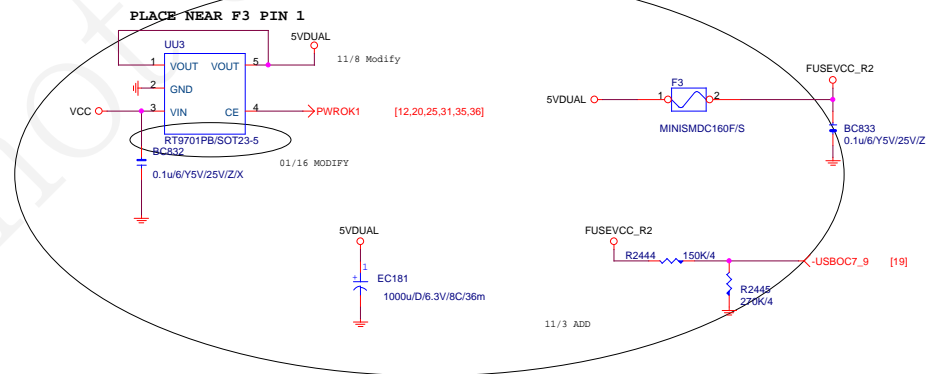


Gigabyte Technology

File	JM363
Size	Document Number
Date	Monday, February 12, 2007
Rev	1.2
Sheet	33 of 36



www.aitech1.ru



Gigabit Register 01	Status	Left		Right
		Dual Color LED	Green	
10Mb	OFF	OFF	---	---
100Mb	ON	OFF	---	---
1Gb	OFF	ON	---	---
Link	---	---	ON	---
Active	---	---	Blink	---

10M/100M Register 111	Status	Left		Right
		Green	Orange	
10Mb	ON	---	---	---
100Mb	ON	---	---	---
Link	---	---	ON	---
Active	---	---	Blink	---

BCM5787M

10mm x 10mm
68-Pin QFN

SIGNAL NAME IN () IS UNIQUE TO 5906

Package Body
BCMS787MKMLG/A2/S[10HP2-405787-30R]

08/11

PLACE NEAR F4 PIN 1

Dual Color LED

D4 D3 D3 D3

Green Green

D4 D3 D3 D3

Orange Orange

D4 D3 D3 D3

Green Green

D4 D3 D3 D3

Orange Orange

D4 D3 D3 D3

Green Green

D4 D3 D3 D3

Orange Orange

D4 D3 D3 D3

Green Green

D4 D3 D3 D3

Orange Orange

D4 D3 D3 D3

Green Green

Gigabyte Technology

Broadcom 5787 LAN,REAR USB

File

Size Document Number

TQ965MK-HP

Rev 1.2

Date Monday, February 12, 2007 Sheet 35 of 36

