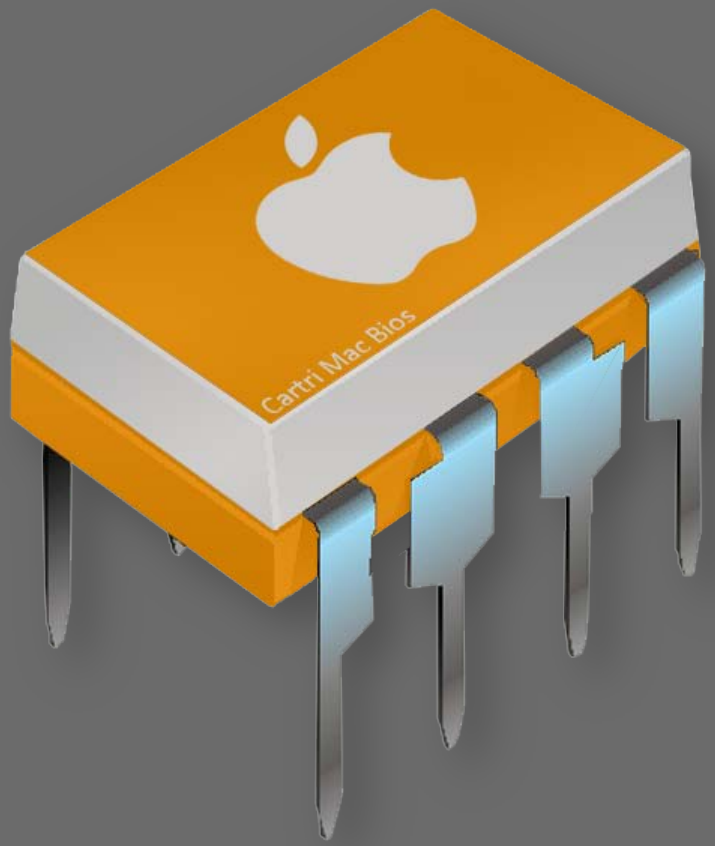
Cartri Mac Edition Bios Manual



Gigabyte EP43 & EP45 Series with ALC889a Sound

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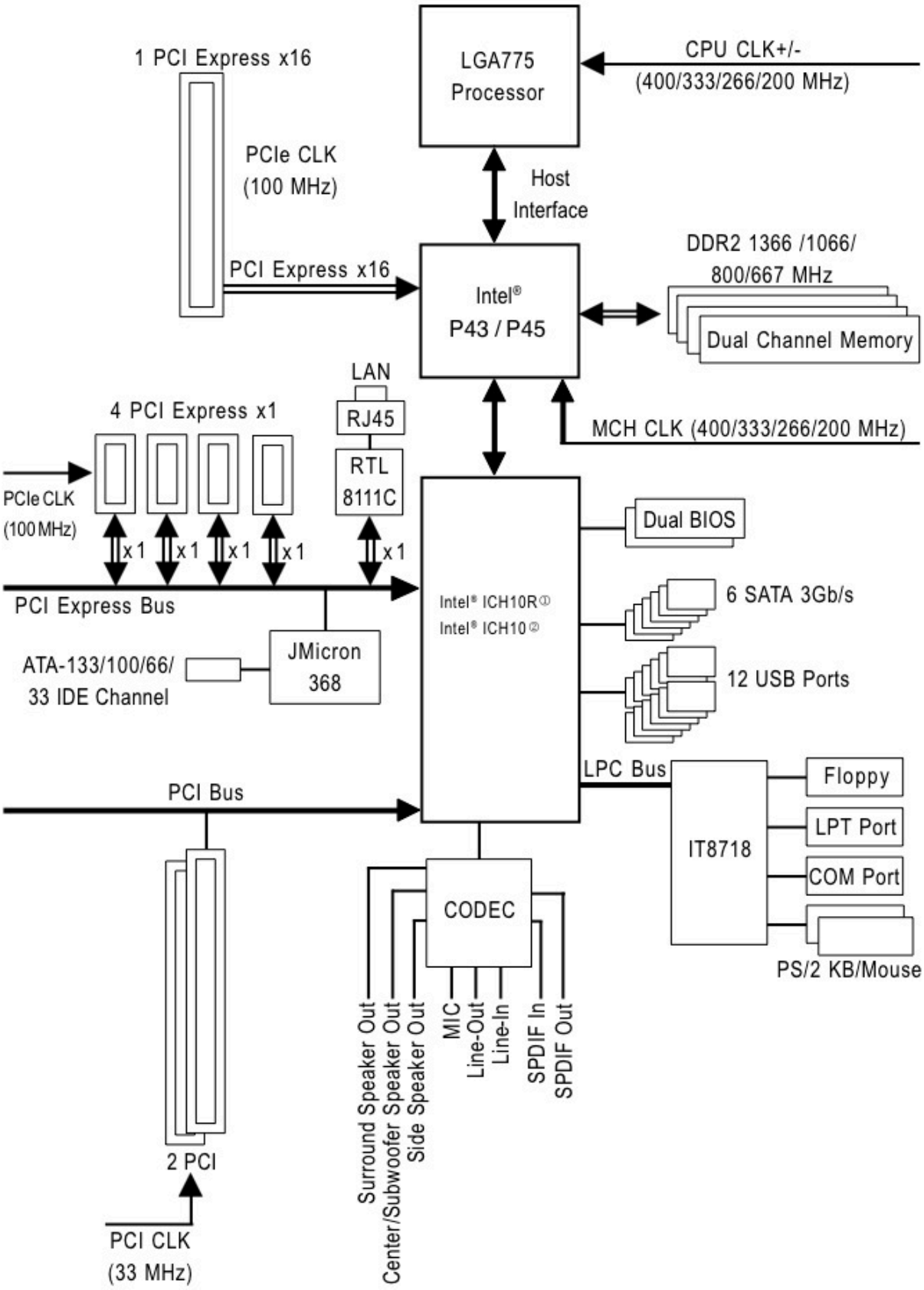
THIS PROJECT HAS BEEN KEPT AWAY FROM PUBLIC UNTIL IT GOT ENOUGH SECURITY STATE TO BE RELEASED. IT HAS BEEN POSTED TO MANY OSX86 COMMUNITIES, SO I CAN’T FOLLOW EVERY POST I MADE IN EVERY FORUM. PLEASE CONTACT ONLY TROUGH:

HTTP://CARTRI.NET

All this project hard work is mainteined by a single person in his free time, and made possible by alphatesters who volunteered to test the code on their boards before i could release. All of this is kept by the ***clickable*** **ADS** in my blog, and if you want to directly donate to this project you can do it following the link above. ANY dollar is welcome, and makes difference to my motivation and my possibility to buy new motherboards. To donate:

Block Diagram



1. Introduction

This project consists on a hacked gigabyte bios file (based on the latest official bios for each motherboard) which you can flash to your motherboard **(ONLY)** trough Q-Flash, and, once booted, have a normal functional computer for **any** OS, and the possibility to boot under Mac OS X with enhanced features normally achieved trough the use of a DSDT.aml file or modified bootloaders.

The Final idea is having a bios that boots OSX (we will still need a bootloader for now but i pretend to implement that into bios in future releases) without the need of any DSDT.aml stored on your disk.

2. Safety of Use, Risks and Resposability

Indeed every main release was tested over the referenced board, this bios and it's flashing process – as any bios update – includes risks and may brick your motherboard if not well done. Some functions of your Motherboard may be disabled in some versions and others may be created depending on the release version you are using – Please reffer to the changelog on this.

The creator and maintainer of this project takes no responsibility of any damage these bios update can create to anything in this world, being these files released AS ARE and **the user fully responsible for using it or not, and any problems it could cause.**

3. Other Motherboards and Project Mantainement

This project, by now, supports many motherboards: Gigabyte's EP43 and EP45 series, already being ported to other Gigabyte motherboards. Check the Block diagram and compare with your motherboard's manual one if you want. Check also the Blog for any updates on the status, and reffer to the blog for the complete motherboards table.

For now ill keep myself occupied into these 39 boards, but in the future i plan to move over to X58 and P55 motherboards, once i'm able to buy them and responsably test them on my own before releasing anything.

4. Installation Instructions

4.1 Choose your bios file according to your Motherboard and Display type (Full Screen for 4x3 monitors and Widescreen for 16x10 monitors, you can test both and see which one gives you the most aesthetic look at boot time.)

4.2 Put it inside a readable standard FAT32 partition (it maybe inside your harddisk or inside a PenDrive formated for this, be sure the media is safe and not corrupt)

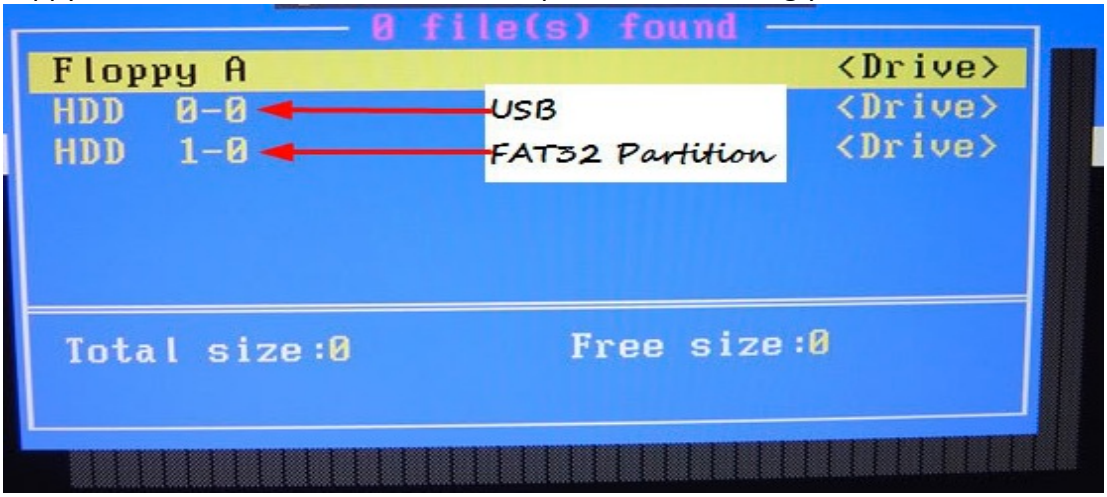
4.3 Update your bios using boot-time Q-FLASH as it follows:

4.3.1 Boot your system and press the key END in your keyboard to claim Q-Flash Note: **DO NOT CLAIM Q-FLASH FROM BIOS SETUP, DO IT DIRECTLY FROM BOOT TIME TROUGH THE KEY [END] OF YOUR KEYBOARD!!**

4.3.2 Leave Q-Flash Setting as in the following screen, **Disabling** "Keep DMI Data"and **Enabling** "Load CMOS Defaults" as below: .

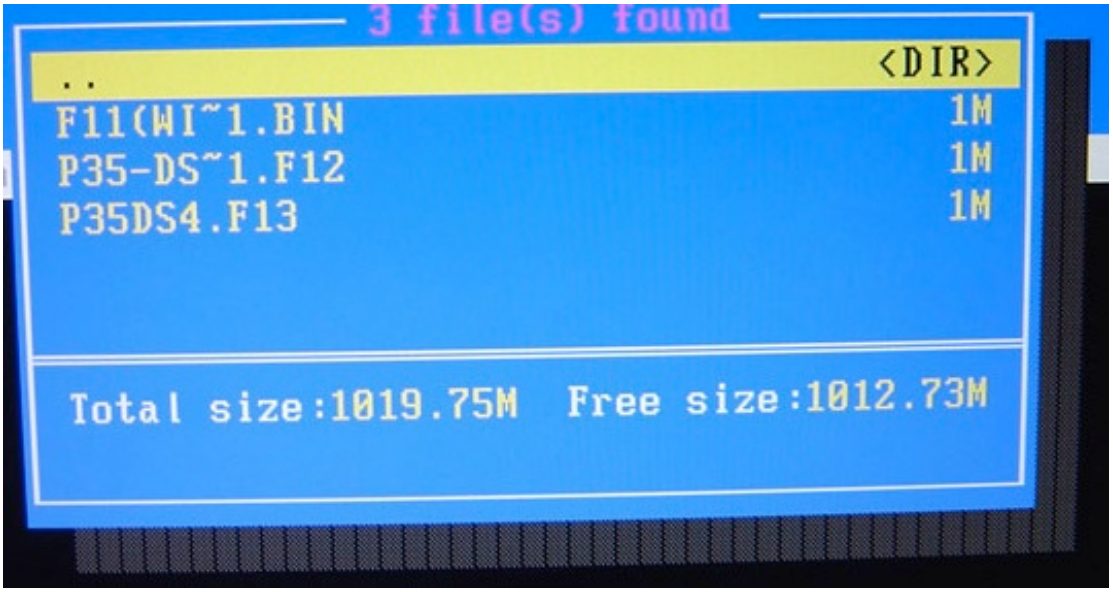
4.3.3 Select "Update BIOS from Drive"

4.3.4 Q-Flash will then scan for FAT32 Partitions in all your hardrives, including floppys and USB Flash drives. Choose the partition containing your downloaded bios.



Note: Q-Flash will only see your USB FAT-32 Drive if it was already plugged while the machine was turned on.

4.3.5 Choose your bios file from the list... **The image below is just an illustration**, your filename should be something like **EP45WIDE.07H or other provided file**, not the ones shown in the image.



4.3.6 Hit enter on the selected file, it will give you a checksum and ask for confirmation. Confirm and **WAIT UNTIL THE PROCESS IS COMPLETE!**

4.3.7 When everything goes right, follow the onscreen commands to Power Off your system <F10>.

4.4 Turn On your system.

IMPORTANT Notes: On the first time you turn on your system after upgrading to the Mac Edition Bios, the system may take longer to start. This is normal. Wait until Chameleon Boot Loader (or any other bootloader you use) loads, and DO NOT ENTER ANY OPERATIONAL SYSTEM (Windows, MacOS, Linux, etc) YET.

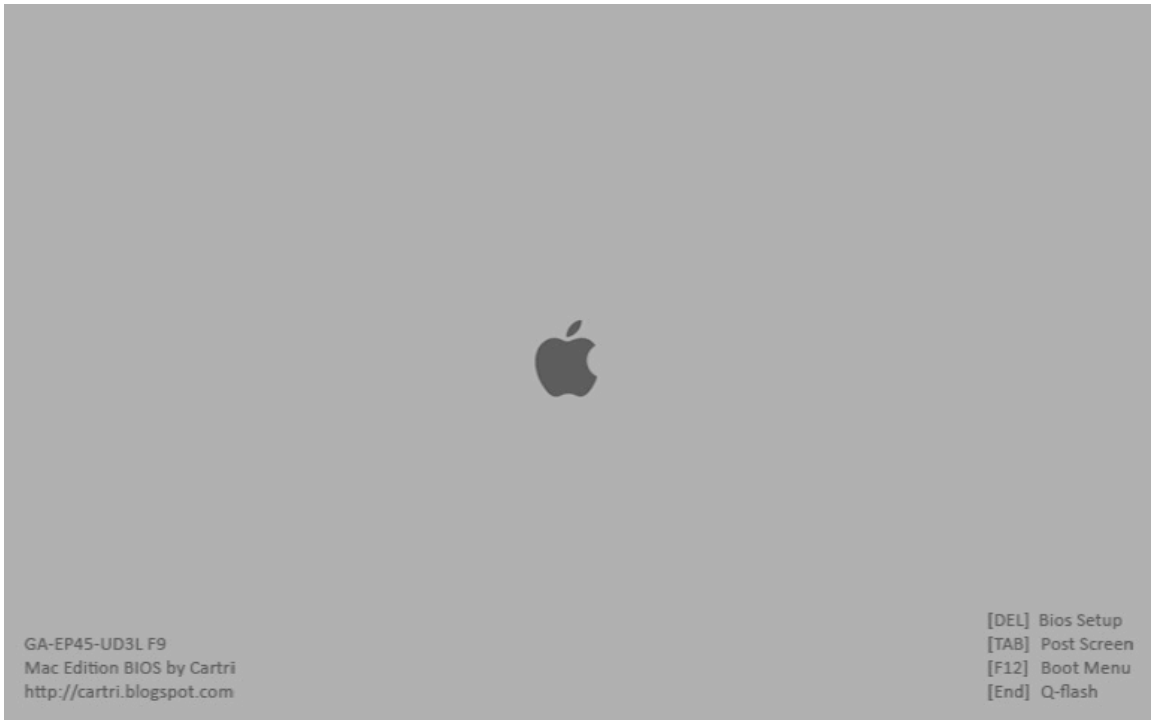
DO NOT JUMP TO THE SECTION 5, AND DO NOT ATTEMPT TO ENTER CMOS SETUP / CHANGE YOUR BIOS SETTINGS BEFORE THE 1ST TIME CHAMELEON RC4 (the officially recommended loader for these bios) LOADS. THIS COULD BRICK YOUR MOTHERBOARD!

IT MAY TAKE MORE THEN 3 AUTO-REBOOTS BEFORE CHAMELEON (or any other boot loader) LOADS, this is due to gigabyte's updating of DMI data after loading the default CMOS Settings, depending on the system previous Gigabyte BIOS version, it may have to update the backup BIOS and only then doing the final reboot. **Only Do the step 4.5 after you see your bootloader.**

4.5 Instantly shut down your system when the bootloader loads, not entering any OS. Then, proceed with Section 5 Instructions in the next page.

5. Post Installation Instructions

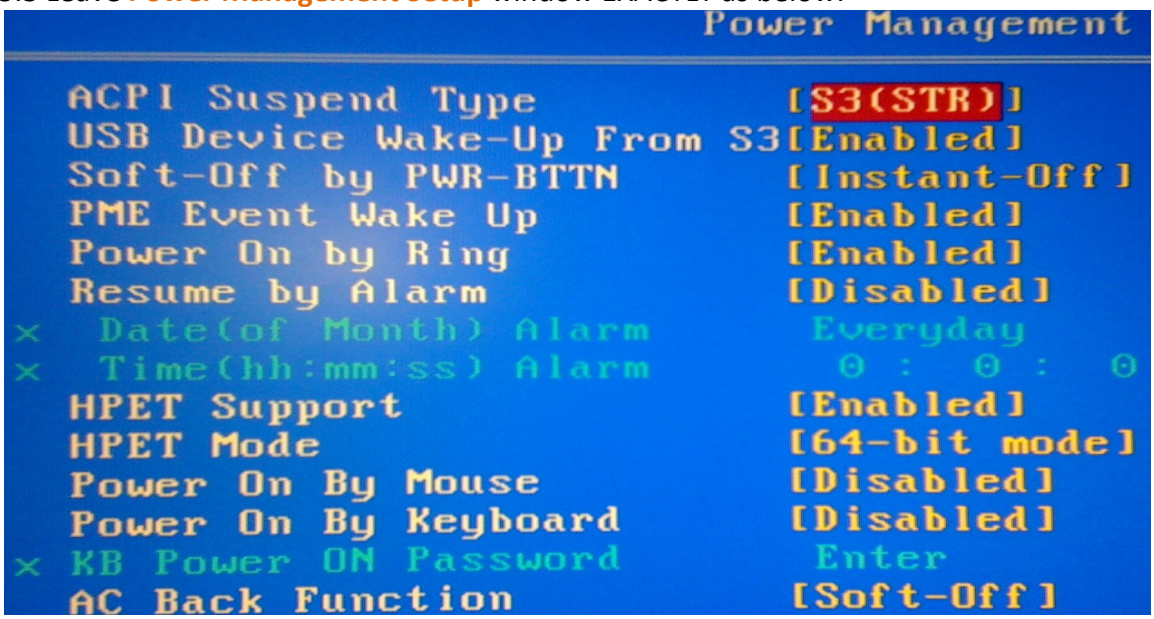
5.1 Welcome to your motherboard's Mac Bios Edition. The first difference you note is the Boot Screen. We will have to reconfigure some parts of it to match the configuration built into the bios file contents. (In some future version this step will be unnecessary but now its essential for your computer functionality). Hit [DEL] to enter Setup.



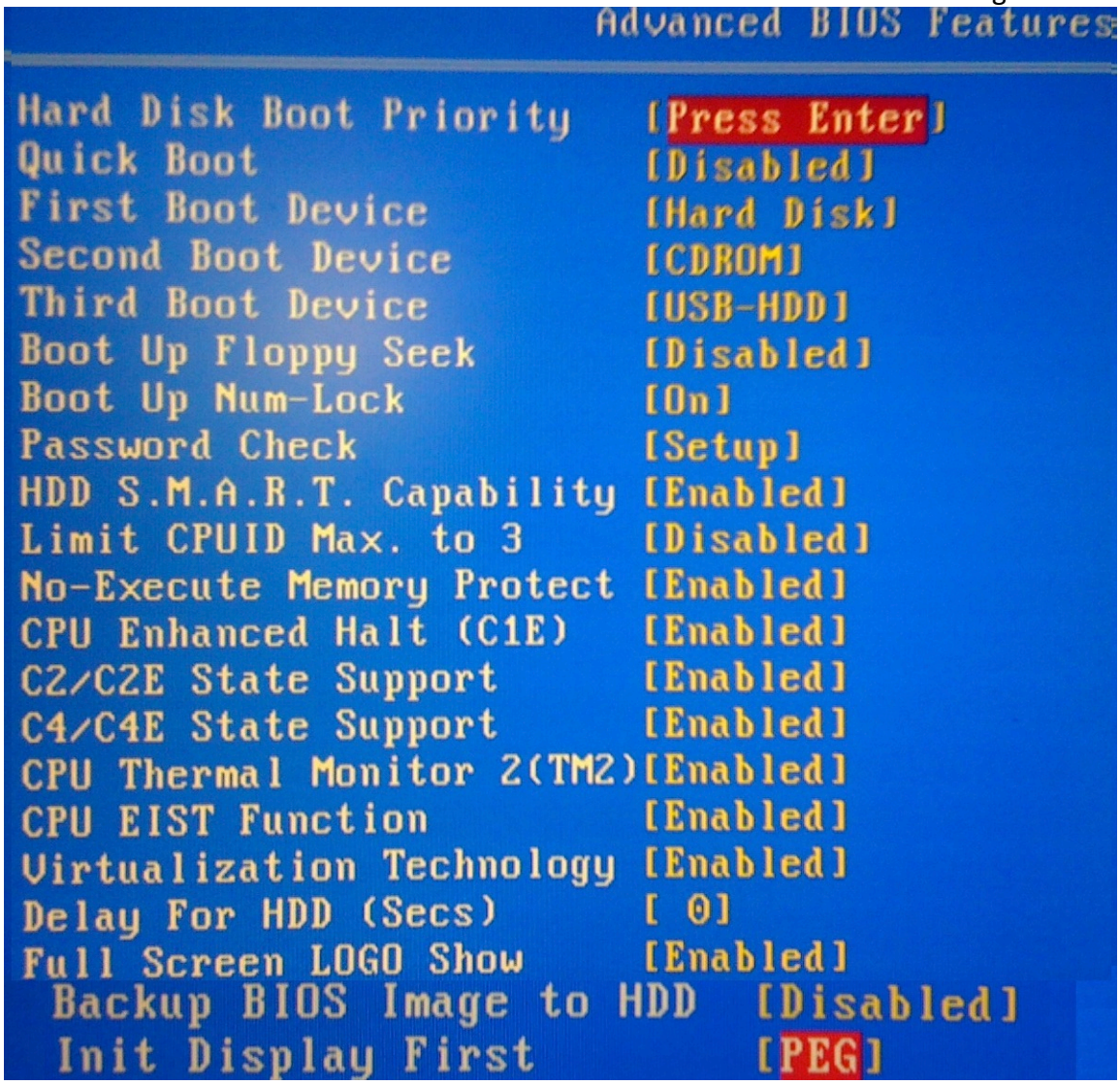
5.2 Press CTRL+F1 , The screen will blink.

Note: The illustrations reflect EP45-UD3L boards but are very simillar to the other supported boards. Some options may differ, and some <u>WILL ONLY APPEAR AFTER STEP 5.2 PROCEDURE</u>. If something isnt at your options, ignore, if you have some extra option that are not pictured here, use your previous or standard settings. You may also notice that now your bios may produce sounds (you'll need loud speakers to hear them). This is not a bug, is a feature.

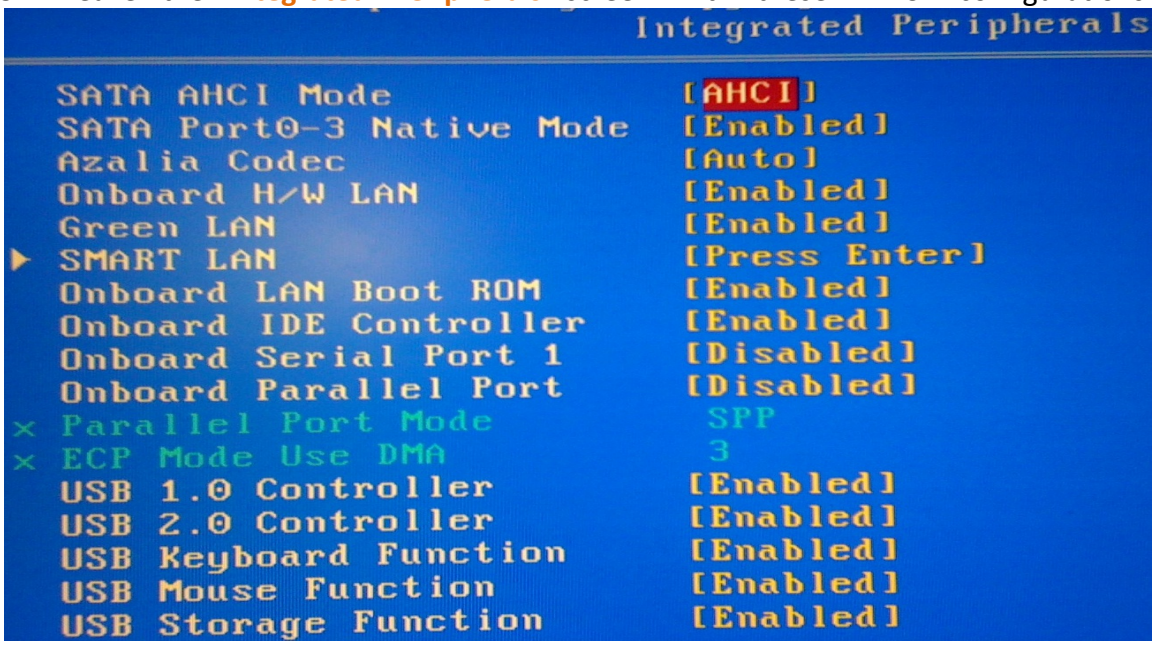
5.3 Leave **Power Management Setup** window EXACTLY as below:



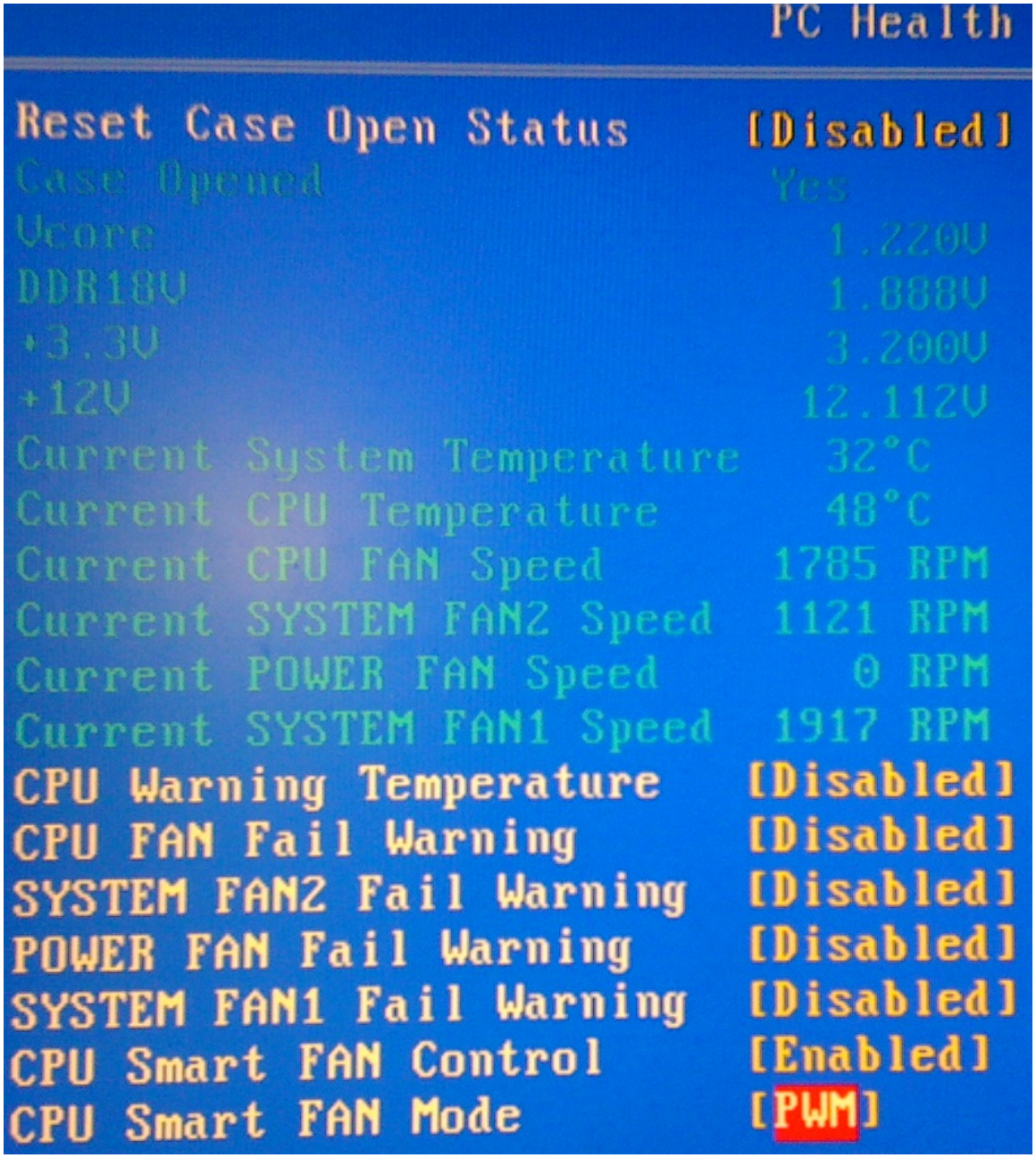
5.3 Leave the screen **Advanced BIOS Features** with these EXACT configurations:



5.4 Leave the **Integrated Peripherals** screen with these EXACT configurations:



5.5 Check the **PC Health Status** screen the 2 last options as bellow:



5.6 Save and exit, now we are ready to go!

PS: Remember to remove your USB Pen Drive prior to first boot in order to speed up boot time.

6. Mac OS X 1st boot configurations.

6.1 Now we are ready to enter Mac OS X, this first entrance will be the final “Test Drive” which will make your system boot Mac OS X without using the DSDT.aml that is in your Hard Drive. To do so use the command (just select your mac partition and start typing, pressing ENTER in the end) above:

DSDT=cartri

6.2 If you are on Mac OS X, **Congratulations! You now have a system that does not depends of DSDT patching!**

Note: Some USB Devices (as Bluetooth Dongles) may have to be reconfigured to the new bios in order to work, to do so just unplug and replug the USB device AFTER the system has COMPLETELY started. Change ports if needed. This will only have to be done the 1st time you boot without your old DSDT.

Note: **If** your system does not boot, recheck completely if the Bios configurations described in Section 5 are IDENTICAL to the pictured ones and try again (dont forget the **DSDT=cartri**) .

If even then your system doesnt start, don’t panic, you can still boot to your old DSDT.aml file by not entering the DSDT=cartri command and everything will work as before, but it would be a **VERY uncommon** situation and **your feedback would be VERY meaningful** by using the command **DSDT=cartri –v** in Chameleon and commenting your feedback at http://cartri.blogspot.com .

In this case dont proceed with the rest of this document instructions, just use your computer as usual, even Linux shall like your new Bios.

6.3 Delete your dsdt.aml file wherever it is. Normally its on your root partition (/) but it can also be inside the /Extra/ folder, or in some unusual installations into the EFI partition. Wherever it is, just **find it**, backup it if you want, **and DELETE IT.**

6.4 Reboot your System so Chameleon will load without DSDT. Welcome to your new mac with all the features your Mac Edition Bios version gives you.

6.5 General Recommendations:

Set Your Mac Model to MacPro3,1
Use Chameleon RC4 Bootloader (v3 Installer recommended).
Dont use any ACPI Replacement method (As restartfix, graphics enabler, etc)
Use EFI Strings for enabling offboard hardware extra functionality if needed (Like QE/CI on videocards, many programs like EFIStudio atomatize this for you, and Chameleon RC4 is able of loading personal com.apple.boot.plist from ”Extra” folder)

7. Kexts you still need, Kexts you no longer need.

Now that your bios provides Mac OS the information he wants to hear, some kexts are no longer needed to make some things work and – as so – they can be deleted from your /Extra/ folder (or wherever you installed em). Please, reffer to your bios changelog to know any additional information on this. **Dont forget to delete the Extra folder's mkexts too**. I heavily recommend you to run a full Disk Util Repair Permissions after changing your kexts – most of the automatic-tools uses default configs to repair kexts permissions, Disk Util is very much more selective on it. Do manually the changes to your extra folder Permissions and Ownership.

For the actual Public Release (v0.7m) the no longer needed kexts are:

SleepEnabler.kext – Now your bios tells your mac how to sleep (from apple menu or keyboard shortcut AND POWER BUTTON) and how to wake (from USB, Bluetooth devices, or Power Button).

Note: In order to Sleep to work, you must tick (enable) all the options in system preferences' Energy Saving menu.

OpenHaltRestart.kext – Now your bios tells your mac how to Shutdown. (Note: Restart is now fixed, the system shutdown is now really faster then on previous mac bios versions, but still can take even 1 minute after the Display shutdown. Just wait. Disk Util and iDefrag can always reduce this time)

OSXRestart/EvoRestart/Restartfix=YES – With the introduction of the 64bit compliant FACP table made specially to this board based on the board resources and not on Macs, these kind of fixes are no longer needed for propper system restart.

HDAEnabler.kext – LegacyHDA is still needed but the enabler is no longer. (10.6.3 dont need patched kexts as any other 889a hackintoshes.)

LPCEnabler.kext – Or any other SBUS/SMBUS Enabler

CPUPMDisabler.kext – Or any other Power Management Disabler. If your processor gets hot use a VoodooPowerMini from SuperHai. You also dont need this kext or any other trick to update your system to further versions, any COMBO Update will do the job.

For the actual Public Release (v0.7m) the still needed kexts are:

fakesmc.kext – or any other decrypter like AppleDecrypt, r3d3, r2d2, or dsmos.

LegacyHDA.kext – You doesnt need the enabler anymore, but you still need that for audio. The no-need for this kext is in high priority in my future versions TODO list.

IOAHCIBlockStorageInjecto.kext or Cartri Volume Icons Pack – And any similar but thats just cosmetical. Indeed even that i want to bring in future versions. Note that your Mac bios support FULL AHCI HOTPLUG OF HARDDISKS, this kext just changes the icon of these disks, nothing more, so you dont need it really (i dont use it)

VoodooPowerMini.kext – Or any other speedstep enabler if you want Speedstep. Im working on bringing this feature to the bios with HIGH PRIORITY.

8. BIOS Features & Differences

This Bios features multiple fixes for Mac OS X, while combining them with **complete compatibility with any other ACPI compliant modern Operational System** – This means it has been tested with **Mac Os X, Linux 2.6 (Ubuntu 9.10), Windows Vista & Windows 7** – already including *that* table for Windows 7 activation for those who have the corresponding certificate file for gigabyte boards (which will never be provided by this project).

Under these Mac Os X fixes we can ressalt the correct loading of the LPC/SMBUS, the complete support for Sleep, restart, power button and Shutdown, the no longer reset of Bios Settings the full compilance of the ACPI tables with MS-ASL and i-ASL compilers, the pin configurations of audio driver, the correct handling of Sata channels, complete loading of power management without panics, among many other optimizations of the original ACPI code.

THIS NEW VERSION BRINGS BACK SUPPORT FOR UART/COM1 PORT. THOSE WHO NEED IT CAN USE IT BACK. Indeed, there should be no support for it on OSX, and if you dont need it for other OSs, you should leave it disabled at bios too free up resources for the system.

Its also important to note that this bios is only compatible with ACPI APIC– NO PICF or PICM modes are used by any OS on it. This wont be a problem for anyone I hope, since any OS from MacOS 10.4 and up, Linux 2.6 and up, and Windows XP and up uses APIC mode.

Future versions will bring many improvements to this bios (see Section 10 – TO DO list) and if you think you can make a difference please enter in contact. All the released versions were tested under the corresponding boards.

Please enter in contact trough http://cartri.blogspot.com if you have any doubt or opinion.

9. Versions Changelog

Please reffer to your build release changelog for a complete changelog. This is the changelog of the remarkable alpha versions until the actual public release version (0.7m)

- **v0.0 - Vanilla Bios with the apple logo & DSDT decompilation fix**
  (Useful for people who needs to make their own DSDT.aml)
- **v0.1 - CMOS reset fix for Snow Leopard**
  (Useful for people who uses other OSX versions among 10.6.x or who is planning first installation)
- **v0.2 - CPUPowerManagement Native load.**
  (This version will allow you to enter OSX without kernel panic without the need of any other kext but fakesmc or dsmos !!)
- **v0.3 - USB1.1 ports seen as internal**
  (This version removes the "Controller will be unloaded across sleep" errors during system load)
- **v0.4 - HDEF Audio Support!**
  (This version makes HDAEnabler.kext no longer needed. LegacyHDA for 888 is still needed)
- **v0.5 - General Code Revision version.**
- **v0.5c - Adds P43/P45 ICH10 Chipset SMBus**
  (increases OSX stability)
- **v0.6g - Shutdown Fix**
  (You will no longer need OpenHaltRestart.kext to shutdown your System)
- **v0.7a - USB 1.1 and 2.0 seen as internal with sleep capabilities.**
- **v0.7g - Native sleep support!**
- **v0.7h – Wake From USB & Bluetooth!**
  (Wake from USB must be enabled in BIOS)
- **v0.7i – Reboot Fix, Power Button Functionality, Faster System Start & Shutdown.**
- **V0.7j – UART port back for the use under Windows and Linux and even Mac!**
  (please dont enable it in bios if you wont use it to free more IRQ resources)
- **V0.7m – freed resources for OS manipulation.**

10. “TO DO” and “iDid” List

In future releases you may see:

- **PROCESSOR INDEPENDANT DYNAMIC NATIVE SPEEDSTEP (functional code needs remake)**
- **Basic or complete HDEF support with no kexts needed**
- **Cosmetic orange icon fix for the the native 0-3 SATA ports**
- **Internal Ethernet fix**
- **GPT disk booting from the bios itself**
- **Jmicron 64bit ATA support**
- **Floppy disk controller (im not kidding)**
- **LPT controller (i maybe kidding)**
- **Please ask for a capability if I forgot any!**
- **PS2 Controller with no kexts for it (at last for Keyboard)**

10.1 Acomplished goals since last release:

- **Restart Fix**
- **Sleep trough power button (without breaking windows ACPI compatibility)**
- **Faster Shutdown in Mac OS X**
- **Reenabled UART port**
- **W.O.L. for internal ethernet.**

Please ask for a capability at cartri.net if I forgot any!

11. Troubleshooting

(A.K.A. “Gods! I LOST MY BOARD?”!)

11.1 Don’t Panic

11.2 HAVE THIS GUIDE PRINTED.

11.3 Possible Issues:

11.3.1 **Eternal restart loop** – “My system starts, and then shuts down, and then restarts, and then shutdown over and over again **MORE THEN 5 TIMES**”

Possible Cause: disregarding the Section 4 installation instructions you did not left CLEAR CMOS enabled in Q-Flash, flashed trough other method that not Q-Flash (as DOS flasher or Windows @bios flasher) or tried to change the CMOS/BIOS SETUP options at the 1st boot.

1st Solution: CLEAR CMOS from your motherboard jumper as stated in your motherboard manual

2nd Solution: CLEAR CMOS by taking the CMOS battery off for 10 minutes without any power source connected to your system (unplug the power cord from the wall) and then putting it back.

3rd Solution: Backup Bios procedure described in the end of this section (jump to Section 12)

11.3.2 **The system wont pass POST screen (pictured in step 5.1)**

1st Solution: CLEAR CMOS from your motherboard jumper as stated in your motherboard manual

2nd Solution: CLEAR CMOS by taking the CMOS battery off for 10 minutes without any power source connected to your system (unplug the power cord from the wall) and then putting it back.

3rd Solution: Backup Bios procedure described in the end of this section (jump to Section 12)

11.3.3 **The system doesnt works as expected.**

1st Solution: CLEAR CMOS from your motherboard jumper as stated in your motherboard manual

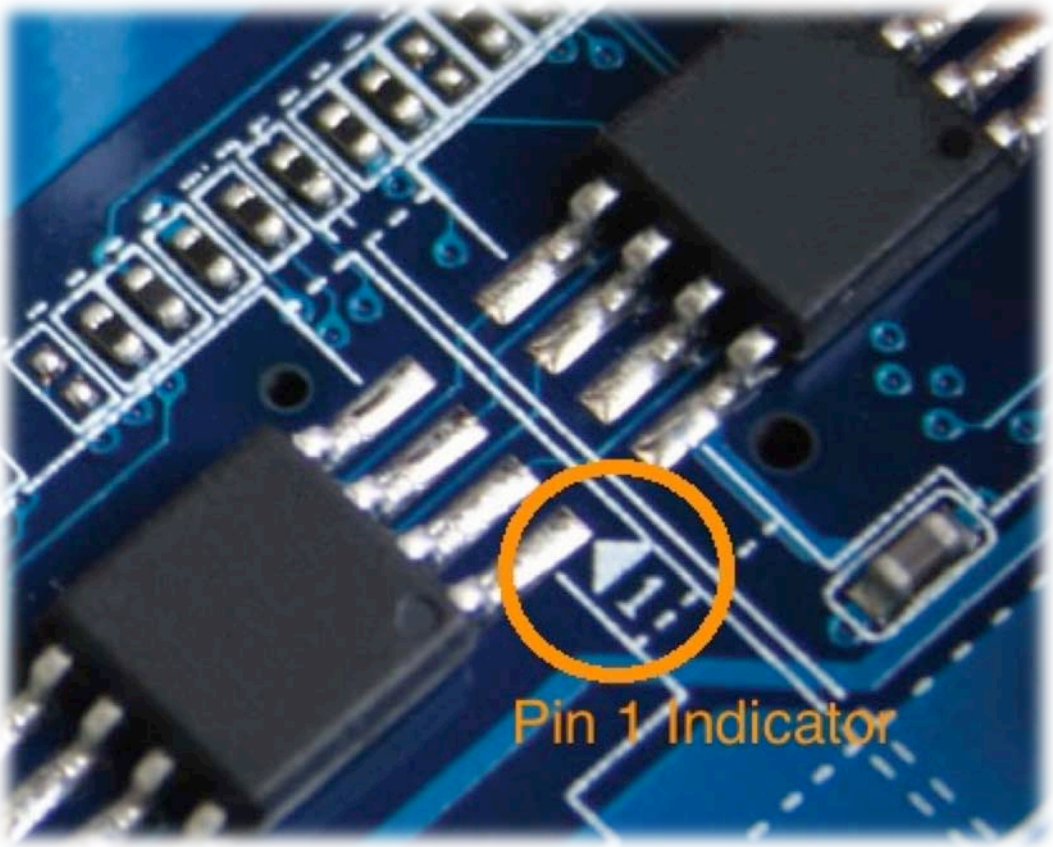
2nd Solution: CLEAR CMOS by taking the CMOS battery off for 10 minutes without any power source connected to your system (unplug the power cord from the wall) and then putting it back.

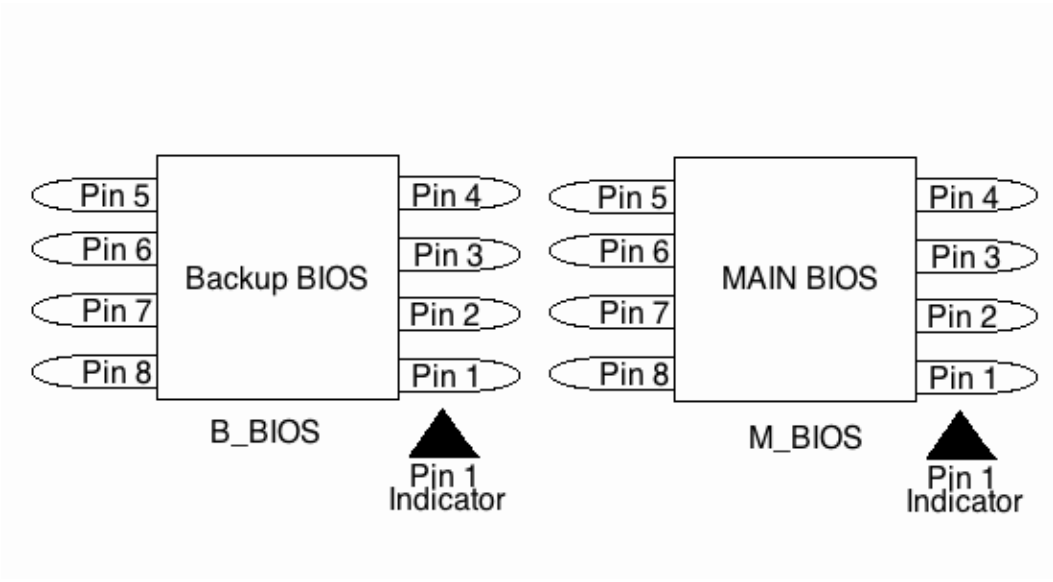
3rd Solution: Flash back to your old bios and give me feedback so i can solve your problem personally trough the blog

12. Hardcore Hardware Bios Backup Recovery

This section is intended for people used to deal with Hardware. It should be used as a latest resource for a broken motherboard and uses Gigabyte's Dual Bios recovery bios to update the Main bios. If you came until here you probably done something wrong earlier, so, this time follow the instructions meticulously.

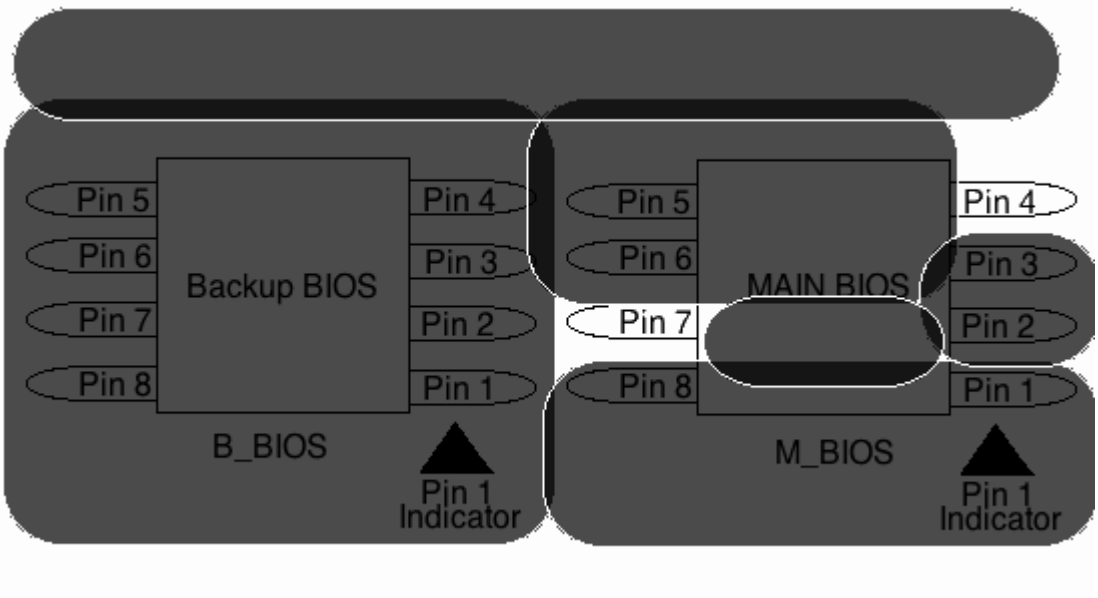
12.1 Find your motherboard main bios MARKED M_BIOS, and identify its 1st pin as in this photo and in the diagram:





12.2 Pick some black isolation tape like this one:

12.3 Isolate completely all the surroundings of M_BIOS with the tape, leaving only M_BIOS Pin 4 and PIN 7 exposed. This are very small pins, be sure that there are no other metal parts from other pins or whatever exposed, only pin 4 and pin 7. Look at the photos and the updated bios Diagram:



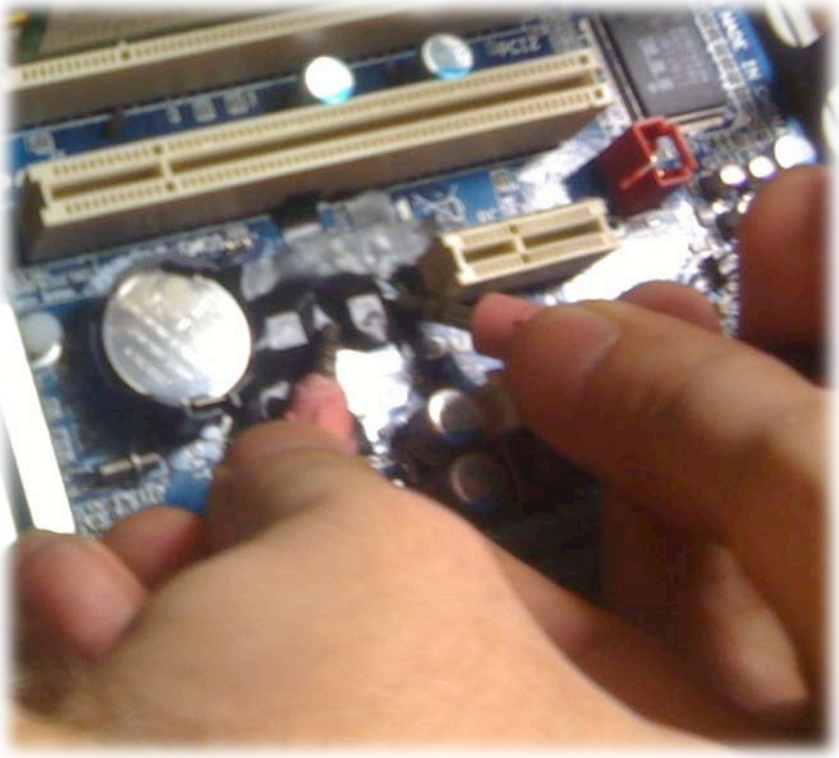
Updated diagram

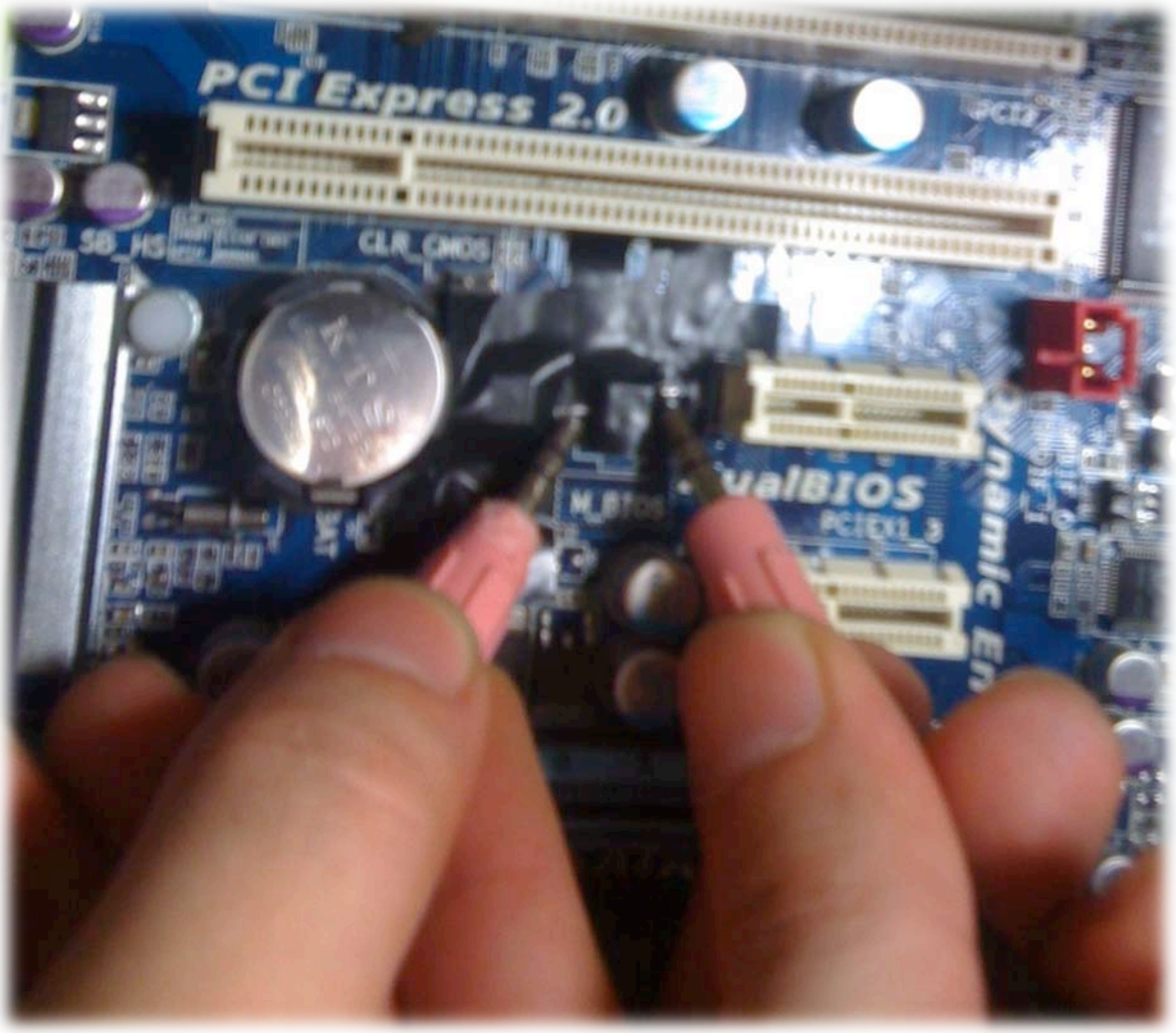
GA-EP43-DS3L & GA-EP45-UD3L examples.

The most you isolate, the better, but be sure to not cover PIN 4 and PIN 7 of the main BIOS.

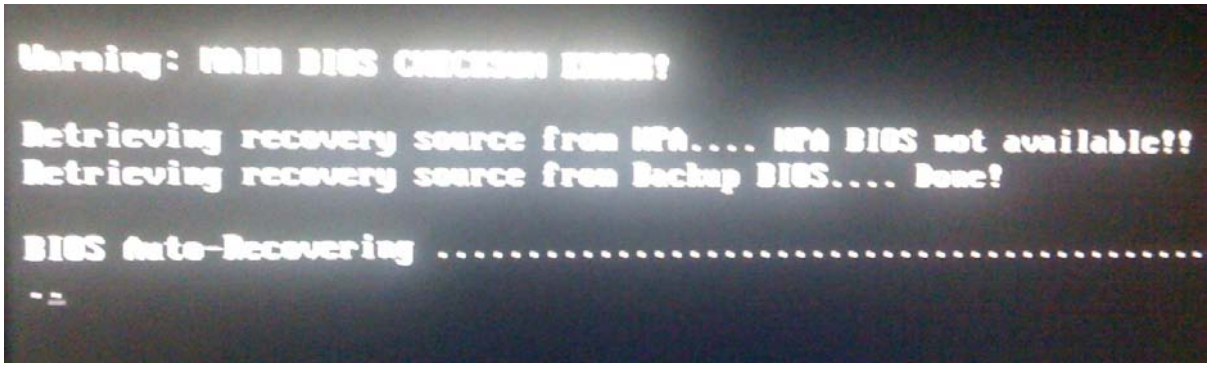
12.4 Pick a cable capable of closing the circuit between Pin 4 and Pin 7, any metallic energy conductor should do the job, but it should not touch your skin (doh) use isolation and grounding or pick a pre-made cable. I used a male-male audio cable to do the job:

12.5 BE CAREFUL – now you will do the trick. Close the contacts between pin 4 and pin 7 and with the closed circuit (with the 2 points of the cable touching each one each pin) turn your machine on. This will tell the Motherboard that the 1st bios isnt present and will boot from the backup BIOS with CMOS default values. (If this cable doesnt work, try other tools, but never let the metal or the wire metal part touch your skin) :





12.6 The system will boot from the Backup Bios. Imediately open the contacts (take out the cable), so the main bios will be re-detected. If your system doesnt boots from recovery bios, repeat the process above until it does: its hard to get there – I had to try more then 5 times. Now wait until Gigabyte Recovery do its job and auto-restart your system.



I Hope this saves your day.

<u>Next time follow ALL the steps ONE BY ONE.</u> ;-)

13. Contact, Feedback, Donations and Updates

This project has been kept away from public until it gets enough security state to be released. It has been posted to MANY OSX86 Communities, so i can't follow every post i made in every forum.

If you want to contact-me, give feedback, thanks, ask something or whatever please do so at the project's official home page: http://cartri.blogspot.com

Keep your eyes at the page and it's RSS to future updates, there will be MANY of them.

Thanks for everyone who has contributed to the OSX86 scene and to all alphatesters who could make this little changes on a single board become a wider project, to all donators who gave me motivation to it and the possibility of buying a new hard disk when the projects hard disk broke, and to everyone i might be forgetting, those are usually very important.

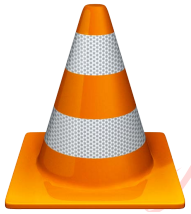
Thanks and enjoy,

Cartri

http://cartri.net

All this project hard work is mainteined by a single person in his free time, and made possible by alphatesters who volunteered to test the code on their boards before i could release. All of this is kept by the ***clickable*** **ADS** at my blog, and if you want to directly donate to this project you can do it following the link above. ANY dollar is welcome, and makes difference to my motivation and my possibility to buy new motherboards. To donate:

Donate ANY amount trough PayPal using any method.
No registration into paypal is required for cards.



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