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5

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## Clover v.2 Instructions

Started by ErmaC, Sep 14 2012 09:18 AM

*Bootloader, EFI, Clover,*

Page 1 of 3

**ErmaC**

Posted 14 September 2012 - 09:18 AM

Slice is glad to present a new EFI bootloader.

[http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-364799-0-26652300-1347969671.png)

364799-0-26652300-1347969671.png)

### CLOVER

**Now version 2 rEFIt based.**It is open source based on different projects: *Chameleon, rEFIt, XNU, VirtualBox*. The main is *EDK2* latest revision.

I also want to thank all who help Slice with the development. Credits and copyrights remain in the sources.

<http://cloverefiboot.sourceforge.net/> (<http://cloverefiboot.sourceforge.net/>)

There is a WIKI

<http://clover-wiki.zetam.org/> (<http://clover-wiki.zetam.org/>)**Main features:****Spoiler** If you have a question please provide outputs from [DarwinDumper](http://www.insanelymac.com/forum/index.php?showtopic=282794) (<http://www.insanelymac.com/forum/index.php?showtopic=282794>) (formed from Trauma tool). Thanks **Trauma!**Continued by **blackosx** and **STLVNUB**.

- [Post#2 CloverGrower](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852870) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852870>) - create Clover by yourself
- [Post#3 Downloads](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852894) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852894>)
- [Post#4 Installation](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852922) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852922>) of the bootloader
- [Post#5 How to do UEFI boot](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852870) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852870>)
- [Post#6 How to use - common words](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852972) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852972>)
- [Post#7 Calculator for Automatic DSDT fix](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853001) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853001>)
- [Post#8 Instructions for GraphicsInjector](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853010) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853010>)
- [Post#9 ATICConnector patching](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853099) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853099>)
- [Post#10 Any kexts patching with some Samples](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853204) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853204>)
- [Post#11 CustomEDID](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853232) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853232>)
- [Post#12 Hiding unnecessary menu entries](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853243) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853243>)
- [Post#13 Instruction for DSDT corrections to do DeviceInjection works](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853330) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853330>)
- [Post#14 Development](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853337) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853337>)
- [Post#15 Themes](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853382) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853382>)
- [Post#16 About kexts injection](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853406) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853406>)
- [Post#17 Instructions for P- and C-states generator](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853406) (<http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853406>)

[p=1853597](#)

- [Post#18 Patching DSDT to get Sleep working \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853603\)](#)
- [Post#19 CPU settings and geekbench \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853640\)](#)
- [Post#20 ACPI tables loading \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853652\)](#)
- [Post#21 DSDTmini \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853674\)](#)
- [Post#22 Custom SMBios \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853675\)](#)
- [Post#23 F.A.Q. \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853680\)](#)
- [Post#24 iCloudFix \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1853681\)](#)
- [Post#25 Using mouse. \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1859444\)](#)
- [Post#26 How to make orange icons to be metallic \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1867850\)](#)
- [Post#27 How to make software RAID \(by Magnifico\) \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1868751\)](#)
- [Post#28 How to modify InstallESD.dmg \(by shieddk\) \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1869539\)](#)
- [Post#29 Config.plist settings \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1878476\)](#)
- [Post#30 Using extra kexts and skipping kernelcache \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1909550\)](#)
- [Post#31 Choosing EFI drivers \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1910955\)](#)
- [Post#32 Configuration files \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1915912\)](#)
- [Post#33 Automatic config.plist creating \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1916256\)](#)
- [Post#34 Custom DSDT patches \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1930786\)](#)
- [Post#35 How to do sleep/wake working with UEFI BOOT \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1931856\)](#)
- [Post#36 DeviceID substitution \(FakeID\) \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/#entry1939878\)](#)
- [Post#37 Using Custom OS Icons \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1953053\)](#)
- [Post#38 Hibernation \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1988140\)](#)
- [Post#39 Floating regions \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/?p=1991952\)](#)
- [Post#41 Property List Editor \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/page-3#entry2015754\)](#)
- [Post#42 Blocking Bad Kext \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/page-3#entry2018880\)](#)
- [Post#43 AAPLslot-name \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/page-3#entry2020878\)](#)
- [Post#44 FakeCPUID for unsupported CPU \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/page-3#entry2036384\)](#)
- [Post#45 Multiple Boot Options \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/page-3#entry2067749\)](#) - to write into UEFI BIOS boot menu
- [Post#46 How to install Windows UEFI \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/page-3#entry2081539\)](#)
- [Post#47 How to speedup Clover boot \(http://www.insanelymac.com/forum/topic/282787-clover-v2-instructions/page-3#entry2096169\)](#)

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Slice:

I edited all posts in the thread to correspond to actual Clover revision.

Please install Clover at least 2652 and use new instructions.

**STLVNUB**

Posted 15 September 2012 - 09:53 AM

## COMPILATION

Now on GitHub: Grab it from link below

<https://github.com/S...UB/CloverGrower> (<https://github.com/STLVNUB/CloverGrower>)

This is open-source project assuming that everybody can compile it if you want to change something.

More info at <http://www.projectos...indpost&p=17480> (<http://www.projectosx.com/forum/index.php?showtopic=2008&view=findpost&p=17480>)

**XCode Command Line Tools are essential** to build the **GCC 4.8.\*** tool chain. ( I will always use latest version ) ☺

Q: CloverGrower, What is it?

A: Tool to download/compile and build the latest Clover package/iso. Packages are archived as they are built.

**ALWAYS RUN CloverGrower.command FIRST, even when Upgrading.**

\*\*\*\*\*

**Slice**

Posted 15 September 2012 - 02:16 PM

## DOWNLOADS

[illegible]


112217-0-38527800-1353736571.png)


So look for new revisions at the project home

## ~~CD-ISO bootable with Clover~~

Utility to install Clover from Windows <http://cvad-mac.naro...diskutilityexe/> (<http://cvad-mac.narod.ru/bootdiskutilityexe/>)

[http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=113944](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=113944)) **FS drivers.zip**  
[http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=113944](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=113944)) **70.08KB** 3583 downloads

 ([http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=158079](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=158079)) **Клевер цвета хаки**  
**3169.pdf** ([http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=158079](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=158079)) **3.94MB** 40  
 downloads

 ([http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=113951](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=113951)) **TextsToTranslate.zip**  
([http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=113951](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=113951)) **7.76KB** 759 downloads  
and upload the result at this thread.

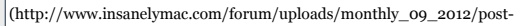
Posted 15 September 2012 - 05:14 PM

112217-0-10053100-1347695820.png)

The screenshot shows the Windows Task Manager Performance tab. The CPU usage is at 100%. The 'Processes' section lists several applications, with 'chrome.exe' being the most prominent. The 'Services' section shows that 'System' is the primary service. The 'Performance' section shows that the CPU is the bottleneck, with 100% usage. The 'Resource Monitor' section shows that the CPU is the primary resource being used.

112217-0-84406000-1347695879.png)

Choose themes. Default one is black-green by blackosx.



C l8r themes preview.

**Spoiler**

to use USB stick for first Clover installation and tests. There are cases where users are running install for the first time directly to HDD and then they mess with existing working Chameleon boot.

## Slice

By dmazar: How to do UEFI boot ([http://www.insanelymac.com/forum/topic/282787-clover-v2/page\\_\\_st\\_280#entry1864061](http://www.insanelymac.com/forum/topic/282787-clover-v2/page__st_280#entry1864061)) Original post (<http://www.projectosx.com/forum/index.php?showtopic=2428&st=240&p=18682&#entry18682>)

I'll repost some info regarding UEFI boot from there:

When trying UEFI boot, try with following combination of drivers in /EFI/CLOVER/Drivers64UEFI folder:

1. HFSPlus.efi, OsxFatBinaryDrv-64.efi

if this does not work, then

2. HFSPlus.efi, OsxFatBinaryDrv-64.efi, OsxLowMemFixDrv-64.efi

and then if this does not work then

3. HFSPlus.efi, OsxFatBinaryDrv-64.efi, OsxAptioFixDrv-64.efi (with slide=0 in boot args in config.plist)

and if even this does not work, then try:

4. HFSPPlus.efi, OxFatBinaryDrv-64.efi, OxFatAptioFixDrv-64.efi (with slide=0 in boot args in config.plist), EmuVariableRuntimeDxe.efi (from [here](http://www.projectosx.com/forum/index.php?s=&showtopic=2428&view=findpost&p=21520) (<http://www.projectosx.com/forum/index.php?s=&showtopic=2428&view=findpost&p=21520>))

More about it:

1. HFSPlus.efi, OsxFatBinaryDrv-64.efi

This works on boards with Gigabyte Hybrid EFI. This is the best option for UEFI boot, in the sense that no special fixes are required. Any OSX should boot fine, unless some big change happens that will stop working boot here.

2. HFSPlus.efi, OsxFatBinaryDrv-64.efi, OsxLowMemFixDrv-64.efi

This works on Insyde H2O UEFI. Some small memory issue will be fixed by LowMemFix, and then everything should be equal to case 1.

3. HFSPlus.efi, OsxFatBinaryDrv-64.efi, OsxAptioFixDrv-64.efi (with slide=0 for ML)

This works for all other boards ... well, where works. This is not so good solution because it depends on current functioning of boot.efi and current structures that are passed between boot.efi (boot loader) and kernel, like boot args and device tree. Meaning: if structure of boot args changes, like it changed when Lion came out, which caused Chameleon to fail to boot Lion, this will again break Chameleon and UEFI boot with AptioFix - until somebody fixes it. This is the most annoying thing to me because the major point for having UEFI boot is to use boot.efi as bootloader and to avoid such things. Well, if this happens, the first solution will be to fall back to standard Clover until the thing is resolved. The small issue is that standard Clover is also dependent on kernel boot args when kernel and kext patching or kext injection is used - this would also need to be turned off in that case.

4. HFSPlus.efi, OsxFatBinaryDrv-64.efi, OsxAptioFixDrv-64.efi, EmuVariableRuntimeDxe.efi

This works on Dell Vostro, some ThinkPad's - some laptops with Phoenix UEFI. All mentioned in 3. is applicable here.

All other drivers may or may not be needed. Drivers listed above are required minimum. The best way to test if the driver is needed or not is to try without it - if the thing still works, then it is not needed. Well, more or less ... since for example normal boot works without FSInject, but that one can be needed sometimes.

ErmaC

Posted 15 September 2012 - 09:09 PM

## How to use - common words

OK.

In the following we will assume that you correctly installed Clover.

The default configuration that comes with the installer is usually good enough for most configurations, so as a first attempt just try to boot.

Remember choose a starting device in BIOS or CLOVERX64.EFI in the case of UEFI BIOS.

The boot process will proceed as follows:

**Legacy BIOS:** BIOS->MBR->PBR->boot->CLOVERX64.EFI-> ... system, namely boot.efi->mach\_kernel->Login

**UEFI BIOS:** UEFI->CLOVERX64.EFI-> ... system

The file CLOVERX64.EFI located at /Volumes/YourHDD/EFI/CLOVER/ is a graphical menu to choose a system to boot (CloverGUI).



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-46968700-1347717067.png)

112217-0-46968700-1347717067.png)

As you see there is a help calling by **F1** key.



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-52967400-1347717134.png)

112217-0-52967400-1347717134.png)

This is a Russian example. There are also other languages and the choice depends on setting in your config.plist file

```
<key>SystemParameters</key>
<dict>
<key>prev-lang:kbd</key>
<string>en:0</string>
```

At this moment there are languages: en, ru, it, es, pt, de, id, fr, ua, pl.

There is no your language? Took "TextsToTranslate from [Downloads \(http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852894\)](http://www.insanelymac.com/forum/index.php?showtopic=282787&view=findpost&p=1852894) section, translate it to your language and upload here. I will implement ASAP.

You can change some settings directly from GUI. This is for temporarily enable/disable some features that you are not sure



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-21052600-1347718084.png)

112217-0-21052600-1347718084.png)



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-62418100-1347718101.png)

112217-0-62418100-1347718101.png)



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-)

112217-0-31159300-1347718120.png)



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-)

112217-0-65223100-1347718151.png)

Now you can boot a system. Just press "Enter". Or you may press 'Space' and choose other method to boot



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-)

112217-0-99399900-1347718247.png)

ErmaC

Posted 15 September 2012 - 11:21 PM

## Automatic DSDT fix

One of the the most important concerns in the hackintosh world is how to create a good DSDT.aml.

If you already have your own DSDT.aml, you can directly place it into `/EFI/CLOVER/acpi/patched`. Moreover, in case you have different OS versions on the same computer and you want each of them to boot with a different DSDT (wow! it's possible!), what you have to do is to place each DSDT.aml in the **root partition** of the corresponding OS version.

Order of searching is follow

1. Look for `/booted_partition/DSDT.aml` if not found then
2. Look for `/clover_partition/EFI/CLOVER/OEM/your_motherboard_name/ACPI/patched/DSDT.aml`, if not found then
3. Look for `/clover_partition/EFI/CLOVER/ACPI/patched/DSDT.aml` if not found then
4. Took OEM DSDT from BIOS of the computer.

If you don't have any good DSDT yet, you may allow Clover to create an autopatched DSDT for you. Namely, Clover will extract the DSDT as provided by the BIOS and consequently apply some patches. The specific set of patches that will be applied depends on your choice. The following example showcases how to apply one of the available patches by altering the configuration file `config.plist`:

```
<key>ACPI</key>
<dict>
  <key>DSDT</key>
  <dict>
    <key>Name</key>
    <string>DSDT.aml</string>
    <key>Fixes</key>
    <dict>
      <key>AddDTGP_0001</key>
      <true/>
      <key>AddMCHC_0008</key>
      <false/>
      <key>FakeLPC_0020</key>
      <false/>
      <key>FixAirport_4000</key>
      <true/>
      <key>FixDarwin_0002</key>
      <false/>
      <key>FixDisplay_0100</key>
      <true/>
      <key>FixFirewire_0800</key>
      <true/>
      <key>FixHDA_8000</key>
```

```

<true/>
<key>FixHPET_0010</key>
<true/>
<key>FixIDE_0200</key>
<false/>
<key>FixIPIC_0040</key>
<true/>
<key>FixLAN_2000</key>
<true/>
<key>FixSATA_0400</key>
<false/>

```

To calculate them it is better to use an [application by Cvad \(http://www.insanelymac.com/forum/topic/295550-clover-third-party-tools/#entry1988237\)](http://www.insanelymac.com/forum/topic/295550-clover-third-party-tools/#entry1988237)

If you want to see a result of patches then you can set

```

<key>ACPI</key>
<dict>
  <key>DSDT</key>
  <dict>
    <key>Debug</key>
    <true/>

```

Then you will found in **/EFI/CLOVER/ACPI/origin** the follow files

DSDT-or.aml - original DSDT.aml, before any patches;

DSDT-pao.aml - patched DSDT.aml, first attempt. It will created immediately before system start even if the system panics.

DSDT-pa1.aml and next numbers until you can start system. Last file will be the best.

The patch will be applied even for custom DSDT and all loaded SSDT.

In some cases your DSDT already contains some Method(\_DSM...). In this case you have to choose if you want to remain old \_DSM (you are sure it is good), or you want to drop OEM \_DSM because it is for Windows and doesn't work in OSX.

Choose

```

<key>DropOEM_DSM</key>
<dict>
  <key>ATI</key>
  <true/>
  <key>Firewire</key>
  <true/>
  <key>HDA</key>
  <true/>
  <key>HDMI</key>
  <true/>
  <key>IDE</key>

```

You may also make your custom binary patches for DSDT. Examples

```

<key>Patches</key>
<array>
  <dict>
    <key>Comment</key>
    <string>Remove battery device from desktop</string>
    <key>Find</key>
    <data>W4IeQkFUMQhfSEIEDEHQDAoIX1VJRAEUCF9TVEEApAA=</data>
    <key>Replace</key>
    <data></data>
  </dict>
  <dict>
    <key>Comment</key>
    <string>Add _SUN property for GIGE</string>
    <key>Find</key>
    <data>UPhTWAhfQURSAAhfUfJXEgYC</data>
    <key>Replace</key>
    <data>UPhTWAhfQURSAAhfU1VOCgQIX1BSVxIGAg==</data>
  </dict>
  <dict>
    <key>Comment</key>
    <string>Rename GFXo to IGPU</string>
    <key>Find</key>
    <data>RoZYMA==</data>
    <key>Replace</key>
    <data>SUdQVQ==</data>

```

```

</dict>
<dict>
  <key>Comment</key>
  <string>Rename HDEF to AZAL</string>
  <key>Find</key>
  <data>SERFRg==</data>
  <key>Replace</key>
  <data>QVpBTA==</data>
</dict>
</array>

```

Length Find and Replace may be different

And one more problem with DSDT patching.

If you set FixDisplay=true it will create display device with real address.

But in some cases there is similar device with address 0xFFFF. The is a conflict.

As we found there are no common rules what to do so there is a setting

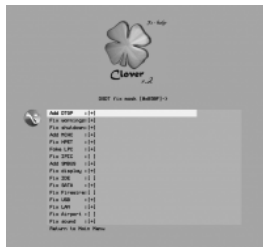
```

<key>ReuseFFFF</key>
<false/>

```

Set True or False and see a result. I can't know what is better for you.

#### Attached Thumbnails



112217-0-54490900-1348120096.png)

([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-)

ErmaC

Posted 15 September 2012 - 11:53 PM

### Instructions for GraphicsInjector

Historically the sources for GraphicsInjector came from Chameleon where it is named GraphicsEnabler.

It is easy to see is user tell about GE then it means he uses Chameleon else if he tell about GI then he uses Clover 😊

But Clover runs forward.

**Intel** videocards: GMA950, X3100, HD300, HD4000 - proved.

You have just set

```

<key>Graphics</key>
<dict>
  <key>Inject</key>
  <dict>
    <key>ATI</key>
    <false/>
    <key>Intel</key>
    <true/>
    <key>NVidia</key>
    <false/>
  </dict>
</dict>

```

But one note. Some notebooks (like Dell Inspiron 1525) booted into black screen. You can use sleep-trick or erase Device(CRT) from DSDT.

The last thing will be performed by the Clover if you set DsdtFixMask with bit 0x0100 - "FixDisplay".

NewWay you should set FIX\_INTELGFX\_100000

For Intel HD4000 one more parameter is possible

```

<key>ig-platform-id</key>
<string>0x01620005</string>

```

Where 162 for desktop like iMac13 and 166 for MacBookPro and MacMini. Last digit is a version of graphics engine.



We can't confirm information about memory/pipes/connectors dependency.  
Default value set by Clover always work.

**Nvidia** - a wide set of supported video cards, and the database is continuously replenished by ErmaC.  
There are parameters in config.plist

```
<key>Inject</key>
<dict>
  <key>ATI</key>
  <false/>
  <key>Intel</key>
  <false/>
  <key>NVidia</key>
  <true/>
</dict>
<key>NVCAP</key>
<string>040000000000003000C00000000000A0000000</string>
```

But the Clover is clever enough that you need no to set these parameters. Just one: **Inject = true** and this will be the best choice for you. I have many successful reports and no unsuccessful.

New NVidia cards named Kepler don't needed in Inject. They works without it.

**ATI/AMD**

This is a special conversation. I have GA AMD Radeon HD6670 and VFX HD5570 so I tested these technologies in the cases of 5xxx and 6xxx.

You may set nothing (GI = No) and enter desktop with a common ATIRadeonFramebuffer. It works including OpenGL, you may even test with OpenGL Extension Viewer but this is not very good way to go. If you call DVDPlayer it will crash.

If you set GI = Yes you will enter black screen or see empty desktop because all info appears to be on second invisible desktop.

You need ATICConnector patch. [Original topic by bcc9. \(http://www.insanelymac.com/forum/index.php?showtopic=249642\)](http://www.insanelymac.com/forum/index.php?showtopic=249642)

As example for ATI HD6670 is my config

```
<key>Inject</key>
<dict>
  <key>ATI</key>
  <true/>
  <key>Intel</key>
  <false/>
  <key>NVidia</key>
  <false/>
</dict>
<key>DualLink</key>
<integer>0</integer>
```

And then I do connectors patch for the "Ipomoea" framebuffer.

```
<key>KernelAndKextPatches</key>
<dict>
  <key>ATICConnectorsController</key>
  <string>6000</string>
  <key>ATICConnectorsData</key>
  <string>000400000403000000010000210302040400000014020000000100000000040310000000100000000001000000000001</string>
  <key>ATICConnectorsPatch</key>
  <string>0400000014020000000100000000040400040000040300000001000011020105000000000000000000000000000</string>
```

For Mobile Radeon there is necessity to do

```
<key>LoadVBios</key>
<string>Yes</string>
```

Yes, this is a key difference to launch mobility.

**EDID**

In some case you need to inject EDID string. Or may be you just know the better EDID then provided by manufacture.

```
<key>InjectEDID</key>
<string>Yes</string>
```

In this case EDID string obtained by BIOS will be accesible by OSX that is not always true.

If your monitor is non-DDC at all then you may inject some artificial EDID

```
<key>CustomEDID</key>  
  
<data>AP////////wAyDADfAAAAAASQAQIRV4CunVmVITjigmUFQAAAAABAQEBAQEBAQEBAQEBAQE3giGgcFCEHzAgIFYAS88QAAAY3iGgcFCEHzAg
```

**AAPL,DualLink**

For some older cards you should set DualLink=0 or 1. For example ATI HD1600. There must be =0 else you will see four screens.

```
<key>DualLink</key>
<string>1</string>
```

**ErmaC**


Posted 16 September 2012 - 10:37 AM

**ATIContector patching**

First of all I want to thank bcc9 for the method, pcj for implementing this patch and dmazar for making it working.

Instruction how to do.

1. Download **radeon\_bios\_decoder** and **ati\_personality.pl** from [bcc9 topic \(http://www.insanelymac.com/forum/index.php?showtopic=249642\)](http://www.insanelymac.com/forum/index.php?showtopic=249642).

New one  (http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\_id=128013)

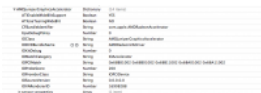
**ati-personality.pl.o.11.zip** (http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\_id=128013)

**6.63KB** 646 downloads

2. Look into SystemProfiler to know what is your Radeon card. My DeviceID=0x6758 which is 6000 series. What is your series? Search through vanilla ATI kexts to find your deviceID or near to that.

For example, if your DeviceID=0x68B2 then you may found that Juniper included very similar DIDs.

See **AMDRadeonAccelerator.kext/Contents/Info.plist**



(http://www.insanelymac.com/forum/uploads/monthly\_09\_2012/post-

112217-0-90064500-1347795476.png)

You must write your DeviceID here.

Also see ATI5000Controller.kext/Contents/Info.plist. The same rule: "if your deviceid is absent then write it near the similar one"

Example

```
<key>IOPCIMatch</key>
<string>0x68981002 0x68991002 0x68E01002 0x68E11002 0x68D81002 0x68C01002 0x68C11002 0x68D91002 0x68B21002
0x68B81002 0x68B01002 0x68B11002 0x68A01002 0x68A11002 </string>
```

Now you are sure your device is controlled by ATI5000.

3. Dump information with **ati\_personality.pl**.

The interesting for you is the 5000 section.

Kext /System/Library/Extensions//ATI5000Controller.kext/Contents/MacOS/AMD5000Controller

Personality: Douc

ConnectorInfo count in decimal: 2

Disk offset in decimal 165856

```
0000000 02 00 00 00 05 00 00 09 03 00 00 21 03 02 02
0000010 00 04 00 00 04 02 00 00 03 00 00 11 02 01 01
0000020
```

And so on. There are several Framebuffers. What to choose? I think any. But the better will be (for my mind, may be I am wrong)

5000: **Baboon** for desktop, **Galago** for mobile.

6000: **Ipomoea** for desktop, **Osmunda** for mobile.

This is my example with HD6670 devID=0x6758 (Turks).

Connectors info:

Personality: Ipomoea

ConnectorInfo count in decimal: 3

Disk offset in decimal 180112

```
0000000 00 04 00 00 04 03 00 00 01 00 00 12 04 01 05
0000010 00 08 00 00 04 02 00 00 01 00 00 11 02 04 03
0000020 10 00 00 00 10 00 00 00 01 00 00 00 00 00 02
```

4. Next step. Dump your bios with the script **radeon\_bios\_decoder** from bcc9.

One moment. Where can you get your VideoBios? There are different ways. The simplest one is to start Clover and press F6. You may find file /EFI/misc/c0000.bin in your Clover partition if it is FAT32 formatted.

```
iMac:test slice$ ./radeon_bios_decode <c0000.bin
ATOM BIOS Rom:
SubsystemVendorID: 0x1458 SubsystemID: 0x2557
IOBaseAddress: 0xe000
Filename: R667D32I.F1
```

```
BIOS Bootup Message:
GV-R667D3-2GI/F1
PCI ID: 1002:6758
```

All that we need is senseid for each output.

DVI-D: 06

VGA: 01

HDMI: 03

So replace the digits in the chosen connectors info. (red digits).

First digits (green) at every line are connector's type

0004 - DP

0008 - HDMI

1000 - VGA

Must be

0400 - DVI-D

0200 - LCD - for notebooks

```
0000000 00 04 00 00 04 03 00 00 00 01 00 00 12 04 01 05
0000010 00 08 00 00 04 02 00 00 00 01 00 00 11 02 04 03
0000020 10 00 00 00 10 00 00 00 00 01 00 00 00 00 00 02
```

Corrected table:

```
0000000 04 00 00 00 04 03 00 00 00 01 00 00 12 04 01 06
0000010 00 08 00 00 04 02 00 00 00 01 00 00 11 02 04 03
0000020 10 00 00 00 10 00 00 00 00 01 00 00 00 00 00 01
```

I can also exchange 2nd and 3rd lines

```
0000000 04 00 00 00 04 03 00 00 00 01 00 00 12 04 01 06
0000010 10 00 00 00 10 00 00 00 00 01 00 00 00 00 00 01
0000020 00 08 00 00 04 02 00 00 00 01 00 00 11 02 04 03
```

5. Now I can write initial table into ATICConnectorsData, and corrected table into ATICConnectorsPatch of my config.plist.

```
<key>KernelAndKextPatches</key>
<dict>
<key>ATICConnectorsController</key>
<string>6000</string>
<key>ATICConnectorsData</key>
<string>00040000040300000001000012040105000800000402000000010000110204031000000010000000000100000000002</string>
<key>ATICConnectorsPatch</key>
<string>04000000040300000001000012040106100000001000000000010000000000100080000040200000001000011020403</string>
```

6. This patch will work in two cases: if KernelCache is used, or if boot-args contain a key "WithKexts".

If for some reason kernelcache is not load then the patch will not be applied.

Remember that you do the patch with the chosen framebuffer, and it will not work if you set other frame buffer in the config.plist

```
<key>Graphics</key>
<dict>
<key>Inject</key>
<dict>
<key>ATI</key>
<true/>
</dict>
<key>FBName</key>
<string>Ipomoea</string>
```

It works for my two computers with HD6670 and with HD5570 giving me working DVDPlayer and all other functionality. I can play 4x4Evolution.

### Some news.

```
0000000 04 00 00 00 04 03 00 00 00 01 00 00 12 04 00 06
0000010 10 00 00 00 10 00 00 00 00 01 00 00 00 00 00 01
```

0000020 00 08 00 00 04 02 00 00 00 01 00 00 11 02 02 03

If you have a problem with Sleep then change encoderid for VGA output to zero (red digits)

If you have a problem with HDMI plug&play then change HotPlugID to 05 (blue digits)

Now hackers says that HotPlugID must be in numeric order 00, 01, 02 ... (blue digits)

Slice

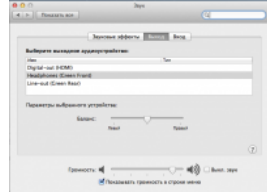
Posted 16 September 2012 - 10:03 PM

### Any kext patching

You may do many patches with this ability.

One funny sample

I look into kext VoodooHDA and found a string "Headphones" = 48 65 61 64 70 68 6F 6E 65 73 00



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-39519000-1347802269.png)

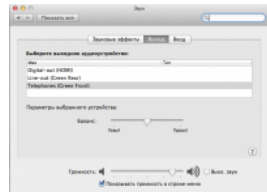
112217-0-39519000-1347802269.png)

I want to rename it to "Telephones" ☺ = 54 65 6C 65 70 68 6F 6E 65 73 00

So I write into config.plist the follow

```
<key>KextsToPatch</key>
<array>
<dict>
  <key>Name</key>
  <string>VoodooHDA</string>
  <key>Find</key>
  <data>SGVhZHBob25lcwA=</data>
  <key>Replace</key>
  <data>VGVsZXBob25lcwA=</data>
</dict>
</array>
```

Reboot and have the result



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-47432300-1347802291.png)

112217-0-47432300-1347802291.png)

Now about more useful patches. One of them is ATICConnectors patch only for 5000 and 6000 controller under 10.7 or 10.8. In other case you should patch as any kext.

For example OS 10.6, ATI Radeon X1650 with non-usual DeviceID=0x71cd. You have to write this value into info.plist but not only.

You also should patch the binaries of ATIRadeonX1000.kext.

Do the follow

```
<dict>
  <key>Name</key>
  <string>ATIRadeonX1000</string>
  <key>Find</key>
  <string>81fa87710000</string>
  <key>Replace</key>
  <string>81facd710000</string>
</dict>
```

There are predefined patches

- Patch for AppleIntelCPUPowerManagement because of ASUS BIOS break MSR register 0xE2 [Original topic by flAked](http://www.insanelymac.com/forum/index.php?showtopic=259066) (<http://www.insanelymac.com/forum/index.php?showtopic=259066>)


```
<key>AsusAICPUPM</key>
```

```
<string>Yes</string>
```

- **Patch for AppleRTC preventing the CMOS reset after restart.**  
[Lion 10.7 Original topic by ravap \(http://www.insanelymac.com/forum/index.php?showtopic=253992\)](http://www.insanelymac.com/forum/index.php?showtopic=253992)  
[Mountain Lion 10.8 Original topic by ravap \(http://www.insanelymac.com/forum/index.php?showtopic=276066\)](http://www.insanelymac.com/forum/index.php?showtopic=276066)

```
<key>AppleRTC</key>
<string>Yes</string>
```

Other known patches that is able to do by this method

- **TRIM support.** [Original topic by scrax \(http://www.insanelymac.com/forum/index.php?showtopic=253369\)](http://www.insanelymac.com/forum/index.php?showtopic=253369)  
 (http://www.insanelymac.com/forum/uploads/monthly\_09\_2012/post-112217-0-97381600-1347803836.png)

- **timeout on AHCI by bcc9**  
[Waiting for root device when kernel cache used; only with some disks +FIX \(http://www.insanelymac.com/forum/index.php?showtopic=280062\)](http://www.insanelymac.com/forum/index.php?showtopic=280062)
- **Intel HD3000 connectors patch by bcc9** (<http://www.insanelymac.com/forum/index.php?showtopic=259705>)

```
<dict>
  <key>Name</key>
  <string>AppleIntelSNBGraphicsFB</string>
  <key>Find</key>
  <data>AQIEABAHAAQBWAAABQMAAAIAAAAwAAAAAUAUAAAEAAAHAAAAAwQAAAEAAAJAAAAAYAAAAEAAAJAAAA</data>
  <key>Replace</key>
  <data>AQIDABAHAAQBWAAAwQAAAEAAAJAAAAUAUAAAEAAAHAAAAAYAAAAEAAAJAAAAAAAAAAAAAAAAAAAA</data>
</dict>
```

- AppleAHCIport to change from External to Internal. [#496 \(http://www.insanelymac.com/forum/topic/282787-clover-v2/#entry1867850\)](http://www.insanelymac.com/forum/topic/282787-clover-v2/#entry1867850)  
[Original topic in Russian. \(http://www.applelife.ru/threads/Меняем-external-na-internal.38111/unread\)](http://www.applelife.ru/threads/Меняем-external-na-internal.38111/unread)
- AppleTyMCEDriver patch to use MacPro5,1 name. <http://www.applelife.ru/threads/clover.32052/page-652#post-319876> (<http://www.applelife.ru/threads/clover.32052/page-652#post-319876>)

- ```

      <key>Name</key>
      <string>AppleTyMCEDriver</string>
      <key>Find</key>
      <data>cgoATWFjUHVjNCwxAE1hY1BybzUsMQBY</data>
      <key>Replace</key>
      <data>cgoAAAAAAAAAAAAAAAAAAAAAAAAAABY</data>
```

ErmaC

Posted 17 September 2012 - 12:31 AM

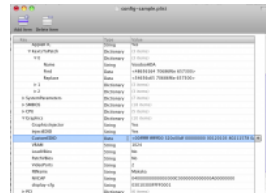
### CustomEDID

It is needed in two cases

1. There is non-DDC monitor.
2. This is DDC monitor, but Apple's driver can't get EDID from them. While BIOS - yes.

For the second case we just set InjectEDID = yes

For the first case we should also write CustomEDID obtained from anywhere into config.plist.

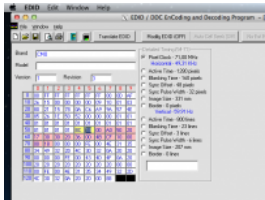


([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-112217-0-92552100-1347812063.png](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-92552100-1347812063.png))

112217-0-92552100-1347812063.png)

You may create your best custom EDID by [ViewSonic EDID editor \(http://www.komeil.com/download/2746\)](http://www.komeil.com/download/2746)  
 just port it into OSX by [Wineskin \(https://sourceforge.net/projects/wineskin/\)](https://sourceforge.net/projects/wineskin/)

This is my result (a file from lvs1974)



(http://www.insanelymac.com/forum/uploads/monthly\_09\_2012/post-

112217-0-32409600-1347812860.png)

EDID sample to load by the program

```
128 BYTES OF EDID CODE:
0 1 2 3 4 5 6 7 8 9

0 | 00 FF FF FF FF FF FF 00 0D AF
10 | 26 15 00 00 00 00 09 10 01 03
20 | 80 21 15 78 0A C6 A9 9A 57 4E
30 | 85 26 1E 50 52 00 00 00 01 01
40 | 01 01 01 01 01 01 01 01 01 01
50 | 01 01 01 01 BC 1B 00 A0 50 20
60 | 17 30 30 20 36 00 4B CF 10 00
70 | 00 18 00 00 00 FE 00 4E 31 35
```

Slice

Posted 17 September 2012 - 01:10 AM

Hiding unnecessary menu entries

The Clover usually find many entries with possibility to boot. There are EFI entries and legacy boot sectors. If you think you don't need it then you may hide it.  
The method by skoczi.

Was



(http://www.insanelymac.com/forum/uploads/monthly\_09\_2012/post-

112217-0-42311200-1347811749.png)

became



(http://www.insanelymac.com/forum/uploads/monthly\_09\_2012/post-

112217-0-45473900-1347811776.png)

A full set of possible hiding as follow  
Since rev1600 (?) there is new format for hiding.

```
<key>GUI</key>
<dict>
  <key>Volumes</key>
  <dict>
    <key>Legacy</key>
    <string>First</string>
    <key>Hide</key>
    <array>
      <string>VOLUME_NAME</string>
      <string>VOLUME_UUID</string>
      <string>TODO_HIDE_VOLUME_BY_TYPE/GROUP</string>
    </array>
  </dict>
  <key>HideEntries</key>
  <dict>
    <key>OSXInstall</key>
```

```

<true/>
<key>Recovery</key>
<true/>
<key>Duplicate</key>
<true/>
<key>WindowsEFI</key>
<false/>
<key>Grub</key>
<false/>
<key>Gentoo</key>
<false/>

```

ErmaC

Posted 17 September 2012 - 10:17 AM

## DeviceProperties Injection

This is a private Apple protocol but well known initially from VBox sources and corrected by next testing. We created some DeviceProperties array (so called EFIString by, for example, EFIStudio) and permit to boot.efi use it.

But we see next requirement

In Chameleon, due to netkas efforts, there is a setting PCIRootUID=0 or 1 to make injection working. What is the number? It apperas to be \_UID property of Device (PCIo). It is enough for Chameleon but EFI always use PCIRootUID=0 no matter if you see in DSDT

```

Device (PCIo)
{
    Name (_HID, EisaId ("PNP0A03"))
    Name (_ADR, 0x00)
    Name (_UID, 0x01)
    Name (_BBN, 0x00)
}

```

We can set in config.plist **PCIRootUID=1** in this case and this works at many configurations. But

as I see on screen boot.efi searches boot device at path **Acpi(PNP0A08, 0)**. It means always **PCIRootUID=0** and always **\_HID=PNP0A08**.

So we have to correct DSDT to

```

Device (PCIo)
{
    Name (_HID, EisaId ("PNP0A08"))
    Name (_CID, EisaId ("PNP0A03"))
    Name (_ADR, Zero)
    Name (_UID, Zero)
    Name (_BBN, Zero)
}

```

And then we have to set **PCIRootUID=0** or just forget it because 0 is a default value.

This DSDT patch always performed by Clover so you just have to control that all is good.

Clover performs automatic DeviceProperties generation. You may set **Yes** on **No** to do that.

```

<key>StringInjector</key>
<string>No</string>

```

If **NO** then automatic generation.

if **YES** then your custom string will be used.

Consider automatic injection:

LAN injection - always ON

USB: default YES

```

<key>USBInjection</key>
<string>Yes</string>

```

Graphics injection as said before. Default - yes.

```

<key>GraphicsInjector</key>
<string>Yes</string>

```

Sound injection. This is only the property "LayoutID". This injector will not make you working sound but help you to do that.

Instructions by dmazar

```

// enabled by default
// syntax:
// - HDAInjection=No - disables injection

```

```
// - HDAInjection=887 - injects layout-id 887 decimal (0x00000377)
// - HDAInjection=0x377 - injects layout-id 887 decimal (0x00000377)
// - HDAInjection=Detect - reads codec device id (eg. 0x0887)
// converts it to decimal 887 and injects this as layout-id.
// if hex device is cannot be converted to decimal, injects legacy value 12 decimal
// - all other values are equal to HDAInjection=Detect
```

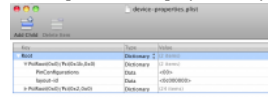
Now we can consider manual producing DeviceProperties array. You may use EFIStudio as an example but it is deprecated.

You may set Clover to automatically produce some strings and then look in it from DarwinDumper report.

You may took those strings convert them to plist,

```
gfixutil -i hex -o xml dp.hex dp.plist
```

edit the plist, for example you know your PinConfiguration



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-112217-0-05079700-1347869718.png](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-05079700-1347869718.png))

112217-0-05079700-1347869718.png)

Then convert the plist back to hex

```
gfixutil -i xml -o hex dp.plist new_dp.hex
```

And then copy this hex string into config.plist

```
<key>StringInjector</key>
<string>Yes</string>
<key>DeviceProperties</key>
<string>7a000000010000000100000006e0000000200000002010c00d041030a00000000010106000001b7ff040028000000500069006e0043006f006
```

This way automatic patching will not be performed and your own string will be used.

## ErmaC

Posted 17 September 2012 - 11:16 AM

### Development

You may use GloverGrover or CloverGroverPro. Here is instructions for manual development.

```
cd ~
mkdir src
cd src
svn co https://svn.code.sf.net/p/edk2/code/trunk/edk2 edk2
cd edk2
svn co svn://svn.code.sf.net/p/cloverefiboot/code/ Clover
make -C BaseTools/Source/C
cd Clover
./buildgettext.sh
./buildgcc-4.9.sh
./buildnasm.sh
```

One note. In svn repository there are no files HFSPPlus.efi because of licensing. Took them here from download section.

Or you may use opensource VBoxHFS.efi.

To use Apple's driver you may correct Clover.fdf from

```
# foreign file system support
INF Clover/VBoxFsDxe/VBoxHfs.inf
#INF RuleOverride=BINARY Clover/HFSPPlus/HFSPPlus.inf
```

to

```
# foreign file system support
#INF Clover/VBoxFsDxe/VBoxHfs.inf
INF RuleOverride=BINARY Clover/HFSPPlus/HFSPPlus.inf
```

Making package and CD image

```
cd ~/src/edk2/Clover/CloverPackage/
./makepkg
./makeiso
```

#### Attached Files

([http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=114022](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=114022)) **mtoc.NEW.zip**  
([http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach\\_id=114022](http://www.insanelymac.com/forum/index.php?app=core&module=attach&section=attach&attach_id=114022)) **53.3KB** 19 downloads



## Slice

Posted 17 September 2012 - 07:48 PM

## About kexts injection

©dmazar

When kext injection is working, then any caches should be ignored (kernelcache, Extensions.mkext) and boot.efi should load kernel and kexts separately - slower boot with lot of dots on a screen. Also, if any kexts are loaded, then they should be visible in system as they would normally be.

For example, FakeSMC would write some line in kernel log and can be seen with kextstat | grep -i fake.

Plus, boot.log will have something like: FSInjection: OS=xx.x Injecting kexts from: &#39;xxxx&#39; done!

If above is not happening, then this kext injection is not working.

A short info how this kext loading is working. Maybe it will help you to see what went wrong:

- FSInject.efi is loaded on startup from \efi\drivers - this is file system proxy driver that is just loaded initially. will get activated later if needed.
- volume selection screen is shown - you can mark the volume and press space to get boot options and then choose "Boot Mac OS X with extra kexts (skips cache)" (going into details to avoid confusion)
- this searches for appropriate folder where kexts could be located
  - EFI/CLOVER/OEM/xxx/kexts/xx.y (version specific) or
  - EFI/CLOVER/OEM/xxx/kexts/Other or
  - EFI/CLOVER/kexts/xx.y or
  - EFI/CLOVER/kexts/Other
- first one found is used, no metter if it is empty or not (possible mistake: if you are booting 10.8 and have kexts\10.8 which is empty and kexts\Other with FakeSMC, then kexts\10.8 will be used and no kexts will be added)
- if one is found, then FSInject.efi is activated - this replaces existing file system driver with our proxy implementation. this one is able to block OSX caches and inject drivers to /S/L/E.
- boot.efi is started - it can not load caches (blocked by FSInject), so it loads kernel and kexts from /S/L/E (FSInject will take care to report our extra kexts as being in /S/L/E)
- lot of dots should appear on screen during kext loading

So, this is what is required:

- FSInject.efi in /EFI/CLOVER/drivers
- kexts in appropriate folder

~~Kexts will be loaded always if not set boot-args=NoKexts~~

~~If you want to boot without kernelcache you may write manually boot-args=NoCache~~

There is a submenu in Details menu

- boot without cache
- boot without kexts
- boot without cache and kexts

By default all extra kexts loaded if there is no FakeSMC in the kernelcache, usual for installation.

Else we propose all kexts are in kernelcache.

Do this by

```
<key>SystemParameters</key>
<dict>
  <key>InjectKexts</key>
  <string>Detect</string>
```

This is default value. Other possible value "Yes" to load kexts always.

You can also may always ignore cache "**NoCaches**"="Yes". But this is wrong idea.

## ErmaC

Posted 18 September 2012 - 11:07 AM

## Instructions for P- and C-states generator

This method was initially developed by mojodojo in Chameleon and comes to Clover with some improvements.

1. Your DSDT must contain a Processor section like this

```
Scope (\_PR)
{
  Processor (CPU0, 0x00, 0x00001010, 0x06) {}
  Processor (CPU1, 0x01, 0x00001010, 0x06) {}
}
```

Do not copy my sample! It is hardware dependent.

2. Write into config.plist

```
<key>SSDT</key>
<dict>
  <key>Generate</key>
  <dict>
    <key>CStates</key>
    <true/>
    <key>PStates</key>
    <true/>
  </dict>
</dict>
```

3. Generated P and C states will be as SSDT tables additional to existing so why you should drop OEM tables to not conflict with new one. It will be better to drop some tables

```
<key>DropTables</key>
<array>
  <dict>
    <key>Signature</key>
    <string>DMAR</string>
  </dict>
  <dict>
    <key>Signature</key>
    <string>SSDT</string>
    <key>TableId</key>
    <string>CpuPm</string>
  </dict>
</array>
```

But OEM tables may contain not only P and C section. For example I have three table and one of them is for SATA.

So I extracted this table, name it as **SSDT-8.aml** and place into **/EFI/CLOVER/acpi/patched** - a place where we can load additional ACPI tables.

4. Generating P-states you may use additional settings

```
<key>UnderVoltStep</key>
<string>1</string>
```

This is for Core2Duo and will not work for i3-i7.

Undervoltage technology gives you more cool CPU. Reasonable values 0,1,2. If you overcool your CPU it may freeze. 🤖

(I mean hangs...)

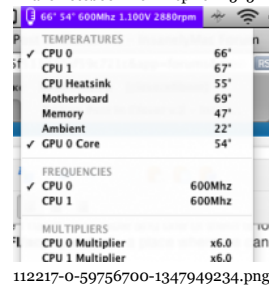
```
<key>PLimitDict</key>
<string>1</string>
```

This value has the same sense as in PlatformPlugin.plist. This is limit to maximum P-state counting down from 0.

That is 0 - no limit, 1 - maximum frequency will be limited by one step before maximum. 2 - two steps before maximum...

This is a story.

I have notebook Dell Inspiron 1525 with Core2Duo @2400MHz. It is too high for notebook! When I write this text I usually have 600MHz



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-112217-0-59756700-1347949234.png](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-59756700-1347949234.png))

But when I play a game my CPU go to maximum speed and the temperature becomes increasing. After 10 minutes it overrun 100C and the computers switched off. 🤖 because of overheating control.

So I set PLimitDict=2 and now I never have CPU speed larger then 2000. PStates with 2200 and 2400 is prohibited.

Now I can play the game infinitely long without overheating.

*NOTE! I encounter strange thing that Core2Quad works faster if PLimitDict=1. I can't explain this. So test different settings.*

5. Generating C-states.

```
<key>UseSystemIO</key>
<false/>
<key>EnableC7</key>
<false/>
<key>EnableC6</key>
<true/>
<key>EnableC4</key>
```

```
<false/>
<key>EnableC2</key>
<false/>
<key>C3Latency</key>
<string>0x03E7</string>
```

This technology is not proved to be fine. The settings above looks to be the best.

ErmaC

Posted 18 September 2012 - 12:00 PM

### Patching DSDT to get Sleep working

Performed automatically if you set some non-zero mask. Yes, the mask will be applied also on your loaded custom DSDT.

As far as I know the DSDT collection by tony is far from perfect.

But there is another question "**How to correct PlatformPlugin to get Sleep and Speedstep working**".

This is not related to Clover but I have to tell about to avoid questions "Why my sleep/restart/shutdown/speedstep is not working?"

When you choose how your hackintosh will be named, for example, MacBook4,1, then you may look a predefined setting for this model in the system

```
/System/Library/Extensions/IOPlatformPluginFamily.kext/Contents/PlugIns/ACPI_SMC_PlatformPlugin.kext
/Contents/Resources/MacBook4_1.plist
```

And you have what to do with this plist. See red text - a text to insert or correct.

1.

```
<key>ConfigArray</key>
<array>
<dict>
<key>WWEN</key>
<true/>
<key>model</key>
<string>MacBook4,1</string>
<key>restart-action</key>
<dict>
<key>cpu-p-state</key>
<integer>0</integer>
</dict>
</dict>
</array>
```

This setting will be useful for Sleep, Restart and Shutdown. Check you have problems with one of them.

2.

```
<key>CtrlLoopArray</key>
<array>
<dict>
<key>Description</key>
<string>SMC_CPU_Control_Loop</string>
...
<key>PLimitDict</key>
<dict>
<key>MacBook4,1</key>
<integer>0</integer>
</dict>
```

This is the **PLimitDict** that we already consider when generating P-state. You should check if it is present else you will not SpeedStep and will not have sleep working.

3.

```
<key>CStateDict</key>
<dict>
<key>MacBook4,1</key>
<string>CSD3</string>
<key>CSD3</key>
<dict>
<key>C6</key>
<dict>
<key>enable</key>
<true/>
```

Remove this section at all!

Having this section I see CPU always at maximum frequency.

```

4.
<key>StepDataDict</key>
<dict>
<key>MacPro3,1</key>
<string>SP1</string>
<key>SP1</key>
<data>
qAYAAAAAAEAagQAACEAAAAACAAAB//8A/wD/AP8A/wD/AAAYAP8BAAP/A...

```

This influence on how many steps will be in work.

See thread by flAked with all results. [MSRDumper \(http://www.insanelymac.com/forum/index.php?showtopic=258612\)](http://www.insanelymac.com/forum/index.php?showtopic=258612)

For example I successfully insert this data from MacPro3,1 to plist for iMac12,1 and got better result.

## Slice

Posted 18 September 2012 - 05:41 PM

### CPU settings and geekbench

No magics. Geekbench measures real CPU speed multiply by core count. Be sure your speedstep setting permit your CPU goes with higher speed, or may be with turbo.

$\text{GeekBenchScore} = \text{MaxCpuFrequency} * \text{CoreCount} + \text{RamFrequency}/2 * \text{RamChannels};$

**CoreCount** = {2 for i3}, {3 for i5}, {4 for i7}

**RamChannels** = 2 if you place similar DIMMs into same colors slots. Else 1 channel.

I also saw a system with 3 channels memory.

Example: i3-2120@3.3GHz, 2channels RAM@1333MHz

$\text{GeekBench} = 3300 * 2 + 1333/2 * 2 = 7933$

The follow set of parameters

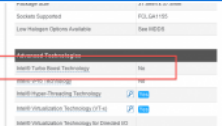
```

<key>CPU</key>
<dict>
<key>BusSpeedkHz</key>
<integer>133330</integer>
<key>QPI</key>
<integer>4800</integer>
<key>Type</key>
<string>0x0201</string>
</dict>

```

**Turbo = Yes** if you CPU is supporting such technology which is not always true. See, for example

[http://ark.intel.com...-Cache-3\\_30-GHz](http://ark.intel.com...-Cache-3_30-GHz) ([http://ark.intel.com/products/53426/Intel-Core-i3-2120-Processor-3M-Cache-3\\_30-GHz](http://ark.intel.com/products/53426/Intel-Core-i3-2120-Processor-3M-Cache-3_30-GHz))



([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-77432700-1347955090.png)

112217-0-77432700-1347955090.png)

Turbo property can't be changed. It may present or not. See boot.log

**ProcessorType = 0x0201** This value corresponds to Yonah CPU. Do not set this key until something new will be found! Clover knows all CPU from Celeron M up to Haswell and can set this value automatically!

**CpuFrequencyMHz = 3200** This value may be used if you don't know your BusSpeed. But this method is not preferable.

**BusSpeedkHz = 133330** This value must be in the range 90 - 400MHz. Some manufacture like to write into DMI the value x4, for example at some ASUS motherboard I saw 1600MHz. This is wrong.

Common rule is follow

$\text{CPUSpeed} = \text{BusSpeed} * \text{Multiplier}$

DMI contains a value in MHz that is not exact. A better value may be written in kHz.

My examples:

133MHz -> 133330kHz

100MHz -> 99790kHz

The system will run smoother and the system clock will be more accurate.

**QPI = 4800** This value appears to be in SystemProfiler as Bus Speed or Processor Bus Speed or Something else in the future system. It is mirage for Apple. Let it be. Write some value here at your will. It is cosmetic and will not influence on somewhat.

([http://www.insanelymac.com/forum/uploads/monthly\\_09\\_2012/post-](http://www.insanelymac.com/forum/uploads/monthly_09_2012/post-112217-0-27853200-1347955997.png)

112217-0-27853200-1347955997.png)

ErmaC

Posted 18 September 2012 - 07:11 PM

## ACPI tables loading

Rules are follow

1. Look into your boot.log to find an OEM name of your computer

In my case

```
running on Inspiron 1525
... with board oU990C
```

So I can use names "Inspiron 1525" or "0U990C".

2. All ACPI tables may be placed in the follow places  
/EFI/CLOVER/acpi/patched - **common place**  
/EFI/CLOVER/OEM/0U990C/acpi/patched - **high priority**. If the place exists then will not search in common place.
3. DSDT.aml may be placed at the root of booted partition. So different OSes may have different DSDT.
4. A full set of possible ACPI tables that can be loaded (with current revision 676)

```
CHAR16* ACPInames[NUM_TABLES] = {
L"SSDT.aml",
L"SSDT-0.aml",
L"SSDT-1.aml",
L"SSDT-2.aml",
L"SSDT-3.aml",
L"SSDT-4.aml",
L"SSDT-5.aml",
L"SSDT-6.aml",
L"SSDT-7.aml",
L"SSDT-8.aml",
```

Since rev3000+ there is no more such list.

You have to choice:

- or all \*.aml files will be loaded from the /patched folder except dsdt\*.aml files. Loading order is not guaranted
- or you have to write into config.plist your own list what to load

```
<key>ACPI</key>
<dict>
  <key>SortedOrder</key>
  <array>
    <string>SSDT-2.aml</string>
    <string>SSDT-1.aml</string>
    <string>SSDT-5.aml</string>
    <string>SSDT-6.aml</string>
  </array>
</dict>
```

In this case only these tables will be loaded.

5. Loading new ACPI table you probably want also to drop OEM tables.

```
<key>DropTables</key>
<array>
  <dict>
    <key>Signature</key>
    <string>DMAR</string>
  </dict>
  <dict>
    <key>Signature</key>
    <string>SSDT</string>
    <key>TableId</key>
    <string>CpuPm</string>
  </dict>
  <dict>
    <key>Length</key>
    <integer>720</integer>
    <key>Signature</key>
    <string>SSDT</string>
  </dict>
```

</array>

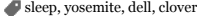

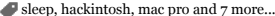



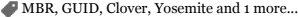



6. DropDMAR=Yes is a key to resolve the problem with VT-d panics.


ErmaC

Posted 18 September 2012 - 08:39 PM

DSDTmini

This is universal DSDT for any Intel-based computer... Not working for now.  
As we have good autopatch OEM DSDT this technology is no more needed to be developed.

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