说明：本文以Lenovo T420作为原型，可以支持x220/t420/t520，另有额外的t420s提供扩展支持。
(这是原始教程，翻译下来很吃力，很多东西我自己也没办法解释，辅助翻译也是乱七八糟的，如果你成功安装了，参照我的简化版操作一下就行
简要理解就是：
(1).从github下载T420所需的文件，然后使用其中的EFI文件，选择适合你屏幕分辨率的config.plist文件，重命名为config.plist.
(2)恢复bios默认设置，系统更改为仅UEFI引导.
(3)制作USB安装盘，使用下载的EFI文件替换原有的Clover.
(4)使用引导安装系统，（安装盘的ESP分区剩余容量必须大于200M，否则格式化磁盘的时候会提示空间不足，格式化失败）
(5)安装完成后继续把EFI文件复制到本地硬盘的ESP，这时你的系统已经可以正常引导和运行
(6)这时候的系统可能没办法调整屏幕亮度和没有声音输出，再看看对应的部分修复一下
(7)至于其他的，自己慢慢了解之后再去看吧，需要积累一定的知识)

Lenovo T420 Clover 指导2017年7月16日更新

- 更新**Clover r4115**，文件存储于：**https://github.com/tluck/Lenovo-T420-Clover/releases/tag/v2107.07.16**
- 主题和**EFI**文件支持到**High Sieera(beta)**
- 切换**AppleHDA_20672为Lilu+AppleALC（以T420为模型）**

在过去6个月的各种更新情况

- Release v2017.05.14 Clover r4070 x on GitHub
  - 修复DualLink的一些问题
  - 修改 config.plist 为新的new plist EDID格式
  - 添加 RehabMan's AppleBacklightInjector方法控制LCD品目亮度 (for 10.12.4 or later)
  - 移除 IntelBackLight.kext (option for 10.12.3 或者更早的版本)
- Release v2017.04.03 Clover r4052 on GitHub

- 更新 FakeSMC.kext 和HWMonitor installer.pkg
- 更新 VoodooPS2Trackpad kext Info.plist - setting to ignore larger bogus jumps.
- 修订 _kext-install.command 脚本
- 修订 VoodooPS2Controller kext
  - 修复冷启动可能出现TrackPoint无法使用的问题
  - 一个基于Jakibaki's cut/paste + TrackPoint Scroll.
- **RGB only-mode 修复:**

- 更新 config.plist 1600x900 EDID to be RGB mode only
- 更新 the DSDT with an EDID with new RGB EDID
- 更新 DisplayOverides to matchFakeSMC and HWMonitor kexts/app 更新到最新版本 - see Utilities folder for full installation tool.
- 修订可选 DSDT温度和风扇控制: dsdt.heat-step.aml (v3)
- 匹配ACPIPolller.kext 支持 DSDT "heat-step" 的方法
- 添加 config.plist 区分10.11 and 10.12 kext patches
- 从1363x768 config.plist移除EDID
- 更新 VoodooPS2Controller kext with a common version at the 1.8.25 revision level.
  -- to use "Multi-Pad" PrefPane setting for Sierra
  -- 修复TrackPad空白 - keyboard set to ANSII layout
  -- smooth scrolling implemented - thanks to Michael Belyaev
  -- 修复大写锁定
  -- remove cut/paste (middle mouse) so scrolling with TrackPoint works
  -- 移除自定义键盘映射for F1-F15 for Sierra
- 更新 IntelMausiEthernet kext到最新版本
- 改变Bluetooth.kext注入方式替代原有的注入方式 - 没有特殊的版本限制
- 修订 ThinkPad 主题 - new banner etc
- 增加 DSDT for "heat-step" - An optional DSDT that needs ACPIPoller.kext or HWMonitor ACPISensors.kext for polling of ACPI to change fan speed as function of Temperature.
- 清理 PNLF device in DSDT
- 更新 DisplayOverride文件和添加FHD (1920x1080) option for 1600x900 screens.
- 更新 theme plist file (removes F1:help text from lower left corner)
- 改变 Clover config.plist CsrActiveConfig setting to 0x43 - to fix HD3000 glitches
- 更新 AppleHDA_20672.kext for 10.11.4+ and later changes
- 添加 OsxAptioFixDrv-64.efi driver as option (默认禁用)
- Put explicit Model MBP8,1 definition in config.plist
- Dropping testing on Mavericks 10.9.x
- 更新 iasl tool
- 重命名 .bash files to .command (can run from Finder or command line)
- 添加 VoodooPS2Daemon in Utility folder
- DSDT mods - 添加 Fn+End and Fn+Home another way to control screen brightness - other misc 修复 to remove PRW Methods to fix sleep
- Changes in support of El Capitan - _kext-install.command and _post_install_network_reset.command -- these put custom kexts in /Library/Extensions vs /System/Library/Extensions
- 修订 config.plist to remove 添加 security (SIP) in El Capitan
- 自定义或者额外kexts独立(except BroadcomBluetooth) and 添加到 **/Library/Extensions**
- 更新 to use IntelBacklight.kext instead of ACPIBacklight.kext - Thanks to

RehabMan
- Switched to Mieze's modern Intel LAN Ethernet Kext (IntelMausiEthernet.kext v2) - replaces older v2 AppleIntelE1000e.kext - Thank you!!!
- Switched to OsxApioFix2Drv-64.efi since it allows hibernation and works fine.
- 添加 ACID SMC key in FakeSMC.kext Info.plist for AC power support for T420 on 10.10 and later - A custom install pkg is included - see the Utility folder in the Zip.
- 添加 universal time registry fix for dual boot with Windows for consistent time.
- Tweaked _kext-install.command 脚本 to fix/recreate symbolic links for custom kexts.
- Using VBoxHfs-64.efi instead of HFSPlus-64.efi
- 添加 a DSDT for T420s vs T420 (provided by pokenguyen)
- Consolidated kexts into the Other directory vs specific version (10.11 10.10) since most kexts are not version specific.
- ThinkPad Theme - minor tweaks to add Yosemite and El Capitan icons. This theme 修订 and committed to Clover addition kext source tree.
- Tweaked config to actually use NVRAM boot drive selection on startup. (Can specify startup disk in System Prefs and restart will use it.)
- Recompiled RehabMan's VoodooPS2Controller.kext **with 添加 Lenovo T420 sections for Keyboard/TouchPad/TrackPoint**
- 添加 Platforms.xml file for use with Docking Station (and No-Dock default) option in AppleHDA_20672.kext
- New custom kexts AppleHDA_20672.kext and BroadcomBluetooth_T420.kext are 添加. Huge thanks to **vladichimescu** for showing me this kext method.
- New Clover config.plist files for on-the-fly HDA kext patching. No need to replace any kexts after updates anymore.
- Removed EmuVariableUefi-64.efi driver to use native NVRAM (vs / nvram.plist) - see note below on how to migrate.
- Removed drop MCFG table from config.plist files. Use at your own discretion to get Nvidia/Optimus working.
- 添加 drop table DMAR so VT-d does not have to be disabled in bios

安装概述

这个zip文件是完整的ESP/kext pack 在Lenovo T420使用Clover 引导macOS

- 这个文件支持Sierra and El Capitan. I 我只在当前系统稳定版本测试(并不能保证测试版能正常使用).
  - 完整的EFI文件配置：定制config.plist + 定制kexts + 自定义DSDT
  - 完整的EFI文件通过github发布，发布地址： GitHub
- EFI文件内提供两个不同屏幕分辨率的配置文件:
  - for high-res LCD (1600x900) (has EDID patch)
  - for low-res LCD (1366x768)
- Non-maintained Mountain Lion Kext Bundles for 10.8.4 are in post #241 and 10.8.5 in post #397
- L420 Guide 由kosakgroove提供并维护

怎样选择Clover vs Chameleon?

- 本机UEFI引导支持macOS GPT磁盘上(Windows).
- 支持Macos安装和从App Store升级.
- 支持Recovery HD for system recovery, iMessage, Find My Mac, etc.
- 动态 DSDT and Kext patching.

警告:

我的系统是 Lenovo T420，屏幕是分辨率为1600x900 LCD 和Intel HD 3000 Graphics.，没有独立显卡，这个EFI文件仅支持我的机型。

类似的机型 - 比如 T420s, T420i, T520 and W520 family - 可能需要修改 config.plist 和DSDT. In the DSDT 源 (.dsl)文件，这些改变需要根据自己的机型修改，如果你的机型和我的一样，这份EFI文件也适合引导你的电脑。
这个指南包括2个部分:
(1)如何创建一个USB安装程序和安装macOS
(2)如何完成操作系统安装运行macOS

新安装步骤和细节

BIOS 设置:

- 建议使用 BIOS **v1.46** (现在也支持v1.48 and v1.49 mods)
- 推荐: reset to defaults(重置BIOS设置为默认值). 大部分设置按照默认设置即可:
- **设置 Config / Serial ATA (SATA) / SATA = AHCI**
- **设置 Security / Memory Protection / Execution Prevention = Enabled**
- 禁用 Nvidia/Optimus (use integrated HD 3000 only - unless you really know what you are doing!)

术语:

GPT = GUID分区表
MBR = 主引导记录
ESP = EFI系统分区, the ESP is created automatically as the first (hidden) partition by the Disk Utility when the GPT option is selected for partitioning a disk.

Note: 自定义DSDT is 基于BIOS v1.46 (flashed with whitelist mod or original)

系统安装

这个过程需要一个新的 macOS USB安装程序， 如果你从一个旧版本macOS升级 (say from El Capitan to Sierra) 在你的电脑上已经存在 Recovery HD分区, 你可以跳过步骤2和步骤4来更新ESP分区. 在你升级系统之前，你需要先更新EFI/CLOVER文件为最新，保证EFI文件和新版系统兼容。 重新运行_kext-install.command脚本将新的 kext文件安装到L/E分区.

- 从这里下载最新的EFI文件: GitHub Lenovo T420 Clover Latest Release. 解压文件，这个文件将为USB安装盘和系统正常运行提供UEFI引导。

- 从 App Store 下载最新系统- they are freely available 可以从"App Store"下载的镜像制作一个标准的MacOS USB安装引导.下载的 EFI文件为USB安装盘提供UEFI引导

- 安装MacOS系统到**GPT格式磁盘,** macOS.app 从Apple Store下载.

创建一个macOS USB安装程序

- 容量大于8GB 的USB盘，**格式化为GUID Partition Table (GPT)**
  - 使用Partition Options... 从菜单里面选择将MBR分区更改为GPT分区
  - 名字建议命名为USB - 这可以使用下面的命令直接制作USB安装盘.
  - 使用格式: Mac OS Extended (Journaled) (formerly OS X Extended)

  注意: 如果你的U盘比较大 (say 16GB)，你可以尝试分成两个分区使用

- 运行下面这个命令复制镜像到U盘:
  注意:如果使用旧版本的macOS,替换为相应的应用程序名称。
- sudo /Applications/Install\ macOS\ Sierra.app/Contents/Resources/ createinstallmedia --volume /Volumes/USB --applicationpath /Applications/ Install\ macOS\ Sierra.app --nointeraction

安装Clover 到U盘

安装Clover到U盘
a) 手动挂载(mount) the ESP of the USB
b) 如果没有完成,下载的EFI文件并解压，存储目录不用更改 ~/Downloads/ Lenovo-T420-Clover-YYYY.MM.DD (this file set is the Zip)
将Lenovo-T420-Clover-日期，把其中的日期更改为YYYY.MM.DD，例如Lenovo-T420-Clover-2017.07.16文件夹，重命名为Lenovo-T420-Clover-YYYY.MM.DD，路径不变，方便直接使用命令，必要时自己变通一下。
c) 复制EFI 文件夹到USB的ESP分区

例如, 你的USB分区是disk1:(仅仅是示例)

sudo mkdir   /Volumes/ESP-USB
sudo mount -t msdos /dev/disk1s1   /Volumes/ESP-USB
cp -a ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/EFI/ /Volumes/ESP-USB/EFI
Note: 运行"diskutil list" 确定你的USB分区的分区标识

根据你的机型的屏幕分辨率的config.plist文件复制到Clover目录下，重命名为config.plist： /Volumes/ESP-USB/EFI/CLOVER:
Rename the configuration file config.1600x900.plist to config.plist or rename config.1366x768.plist to config.plist.

例如1600x900 LCD:
cd /Volumes/ESP-USB/EFI/CLOVER
mv config.1600x900.plist config.plist

使用Clover从USB安装盘引导安装MacOS

· **格式化安装macOS 分区为GPT分区.**

确保你格式化的分区已经做好备份，否则将无法恢复:
分区方案: GUID Partition Map (GPT)
分区名称: macOS
分区类型: macOS Extended (Journaled)

多引导提示:
如果你打算从同一磁盘引导其他系统 - DO NOT make the 2nd partition NTFS or ExFAT with the Disk Utility app.
Make them both "Mac OS Extended (Journaled)"
Size the 2 partitions appropriately - but later you will delete/reformat the 2nd partition for Windows.

· **点击GUI 安装菜单，完成安装大概需要 30-45 minutes，ssd会更快，USB3.0 端口也更快，但容易失败.**
Follow these Notes and Tips:
· 当安装程序屏幕显示:"对一个蓝牙键盘,打开它,等待你的电脑连接。(When the installer screens shows: "To pair a Bluetooth keyboard, turn it on and wait for your computer to connect to it.")
可以按空格键跳过这一步.

· 安装程序似乎卡在第二阶段时: "About a second remaining"
不要慌张，请耐心等待10min左右，安装后继续从USB引导.
只是等待安装程序重新启动电脑并继续安装.
整个安装过程大约需要1个小时才能完成.

· 在第一次从本地硬盘启动会提醒: "How Do You Connect?"

选择:我的电脑不能连接到Interneta

您可以设置网络之后kext安装网卡驱动程序。

你的英特尔无线网卡不会工作，需要更换为高通或者是博通兼容版本的无线网卡，关于无线网卡的选择可以参照无线网卡兼容参考，也可以简要地概述为：A.不用刷bios白名单，这时候只能选择Lenovo拆机的ar928x,性能不是很好

B.更改bios白名单(可能会有刷坏的风险，自己掌握好相关知识)：这时候可以选择更换miniPCI卡，也就是半高卡，其中两天线最好的选择为BCM94352，有Lenovo版带FRU，也可以上全高卡，但未测试，如果选择BCM94360或者AR0380或mac拆机卡，可能需要新增天线，请查询相关资料。

安装完成之后，设置引导磁盘

1.从USB启动Clover
在启动时，安装 F12 选择USB boot - 现在选择从安装macOS的分区引导进入系统.

Note: 在磁盘上你可能会看到三个引导项，而不是预期的2项， - macOS + Recovery HD - 注意确定你选择引导的项目是安装的MacOS而不是 Recovery HD项. 看下面的步骤3移除逻辑卷来消除这个问题。

2.完成安装步骤和登录
Note: 这将从USB引导并启用Clover的kext注入功能 (for now).

3.将逻辑卷转换为物理卷
完整的安装程序应该使用逻辑卷， 为此我使用一个简单的命令完成这个功能.在终端执行:
sudo diskutil corestorage revert /

4,安装Clover到硬盘分区
下载我提供的T420的EFI文件到本地硬盘，本地硬盘的ESP分区和USB分区用的EFI文件完全相同.

手动挂载ESP分区，将EFI文件夹复制到硬盘的ESP分区，类似于 /Volume/ ESP/EFI/CLOVER/.就像你做USB引导盘的时候一样，选择一个适合你的屏幕的config.plist文件，然后重命名为config.plist.如果你之前安装过Windows，需要将原EFI文件夹里面Microsoft文件夹复制到新的EFI文件夹内。(其实这个部分命令太麻烦，只要明白意思直接手动复制粘贴更方便，可以把原来的EFI文件夹重命名的old EFI作为备份，如果有Windows的引导，将那部分复制到新的EFI文件夹内就好)

另外将从github下载的文件夹Lenovo-T420-Clover-2017.07.16(其他的类似，重命名为Lenovo-T420-Clover-YYYY.MM.DD,这样可以直接使用教程里面的命令，这是自己脑子转转弯)

在终端执行如下命令：
sudo mkdir   /Volumes/ESP
sudo mount -t msdos /dev/disk0s1   /Volumes/ESP
cp -a ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/EFI/ /Volumes/ESP/

EFI
    cd /Volumes/ESP/EFI/CLOVER
    mv config.1600x900.plist config.plist
    5.安装Kexts到硬盘的 /Library/Extensions目录

    a) For 10.12.4+: 创建一个自定义的 AppleBackLightInjector.kext（这是修复屏幕亮度的关键，dsdt已经给你改好了，如果不理解，多看两遍）
这种方法取代了IntelBacklight.kext (仍作为一个可选的kext) 可能需要手动去删除，也可以不用管。

    现在创建一个符合你的屏幕的Backlight注入. 目前这个脚本在 ../../EFI/CLOVER/kexts/Other目录 - 将下载的zip文件解压到本地，命名为Lenovo-T420-Clover-YYYY.MM.DD后，在终端执行以下命令：
    cd ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/Utilities/Create_AppleBacklightInjector_kext/
    sudo ./createAppleBacklightInjector.command
    b) 安装kexts到本地硬盘
    安装Lenovo-T420-Clover-YYYY.MM.DD/EFI/CLOVER/kexts/目录下kexts到 /Library/Extensions 目录，直接运行:
    cd ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/EFI/CLOVER/kexts/
    sudo ./_kext-install.command
    6.有线网设备安装

    这一步将启用有线网卡kext 和重置有线网设备端口为 en0 (这是登录AppStore and iMessage等所必须的)
    Note:在终端运行以下命令(这一步不是很必要，可以跳过):

    sudo kextload /Library/Extensions/IntelMausiEthernet.kext
    sleep 10
    sudo rm   /Library/Preferences/SystemConfiguration/NetworkInterfaces.plist
    7建议选择: 安装/复制DisplayVendorID-* directories
这些都包含在zip文件内，应该复制到 /System/Library/Displays/Contents/Resources/Overrides目录下。
    sudo cp -a ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/
\:System\:Library\:Displays\:Contents\:Resources\:Overrides/DisplayVendorID-* /
System/Library/Displays/Contents/Resources/Overrides/
    对于Yosemite和更早的版本, 这些文件应该复制到/System/Library/Displays/Overrides目录
    Note: 这些文件提供更多的颜色矫正和伽玛曲线、以及更多尺寸的LCD屏幕选择。

    8.移除USB，重新启动电脑，从本地Clover引导系统
    Note: 第一次启动可能需要(macOS) verbose mode(基本上不需要，直接启动即可).

已知问题和随机小贴士：

- "Black" Screen(黑屏) - 点击"Pause(暂停)" (or FN) 是增加屏幕亮度的关键 (LCD brightness) - 有时nvram保存的亮度和屏幕亮度不同步（这是随机产生的）

- 因特尔的无线网卡在MAC下不会工作，你需要更换为联想拆机的AR928x(不需要刷白名单，性能一般)，或者是更换为兼容的Broadcom or Atheros chip的无线网卡，这需要将本机BIOS移除白名单限制，二选一.

- Clover可能存在2个可选引导项Logical Volume vs Standard Volume. 恢复 logical volume as Yosemite类似于新的引导磁盘，所以Clover 出现多个引导项，可以执行以下命令解决：
  sudo diskutil corestorage revert /

- Enable (turn on) Bluetooth so the green light is showing on the LCD bezel (do from Windows or Ubuntu).
  - Also make sure the side switch is set to green too!
- 当使用外部耳机或扬声器,可能需要插入和拔掉1或2次才能识别.

- iMessage/Facetime 可能无法使用，你需要在config.plist里面加入本机的ROM and MLB (使用iMessageDebugV2提取).
  - 使用Cloverconfigurator生成 RtVariables -- 看其他关于iMessage的相关的教程.
- 修复：~~With ACPIBacklight.kext installed, boot with lid open or LCD will be black when you open it.~~

- 安装kexts to /L/E, 有些链接AppleHDA_20672.kext 是不对的. 修复链接可使用以下脚本(注意，执行下面的命令可能提示找不到目录，你需要转到/Library/Extensions/，直接冲Finder里面前往/Library/Extensions/目录，里面有几个可能显示为文件夹，把文件后缀全部只保留.kext后缀，灵机一动的哈)：
  - cd /Library/Extensions/AppleHDA_20672.kext/Contents/MacOS
  - sudo rm AppleHDA
  - sudo ln -s /System/Library/Extensions/AppleHDA.kext/Contents/MacOS/AppleHDA
  - sudo touch /System/Library/Extensions

- 休眠使用OsxAptioFix2Drv-64.efi代替OsxAptioFixDrv-64.efi 建议你禁用休眠功能，执行以下命令:
  sudo pmset -a hibernatemode 0
  rm /var/vm/sleepimage

  如果你需要休眠功能，可以设置为模式7.

  sudo pmset -a hibernatemode 7

Note: 描述很怪，我也不知道怎样翻译，选择性忽略吧^_^.

- 添加启动选项darkwake=0 如果你喜欢开盖就打开电源，这可以节省你按电源键的时间.

- TrackPoint 在睡眠唤醒之后可能会出现无法响应的情况.

笔记定制Kexts

下面列出的清单的kexts都包含在zip压缩包内. 如果你想自己下载最新版本，下载后建议使用kext安装脚本复制kexts到 /Library/Extensions 目录.

- **FakeSMC.kext** (v6.25.1426) - 核心机制. 使用Kozlek's version + plugins + custom FakeSMC Info.plist
  - 2个定制SMC键添加到Kozlec's原始的FakeSMC - FNum (to find the Fan) and ACID (for AC power and eliminate powerd syslog messages every 30 seconds).
  - **A Custom package is included in the Utilities folder so you can install HWMonitor.app** - it just selects these 2 Plugins Sensors: ACPI and CPU.
- **ACPIBatteryManager.kext** (v1.70.2) - RehabMan's kext configured for v3 ACPI instructions to show/track battery info on menu bar(状态栏电池显示)

- **AppleALC.kext** (v1.1.4) 保持原始/修改的AppleHDA.kext in /S/L/E 和使用 CX20672提供完整的音频支持 (same as CX20590).
- Note: 有匹配DSDT 部分Conexant Codec. 在dock端口还有Manwe150's fix/additions. 有2个layout-id profiles:
  (1) ID 12 正常的笔记本端口和(2) ID 13 扩展坞的端口. The "dock" version adds the second channel output called "Headphones" and a second Input which shows up as either "Line In or Built-in Microphone" - these ports are physically on the Docking Station itself.
  - 如果你有一个dock, 请设置**inject Audio ID 13在Clover config.plist**
  - 如果没有, 可以直接使用，无需做出任何改变)

- **Lilu.kext** (v1.1.6) -一个kexts框架使AppleALC and NightShift etc正常运行.

- **Bluetooth_Injector_T420.kext** (1.0.0) - 增加Product ID 8575 改善BT(提供开/关功能)).

- **AppleBackLightInjector.kext** (0.9.0) - RehabMan's Injector method - 修改论坛联想T420水平增加亮度的规模为0到4882 (0x1312).
- Note: 有两个模板文件: T420 和T460. 创建一个标准Injector, 运行Utilities

createAppleBacklightInjector脚本创建一个适合你的屏幕的亮度控制，. 并使用 _kext_install.bash 脚本安装，使用如下命令：
cd ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/Utilities/ Create_AppleBacklightInjector_kext/

- sudo ./createAppleBacklightInjector.command[/size]

- **IntelMausiEthernet.kext** (v.2.3.0) - Mieze's Intel LAN kext that supports TSO, EEE and other features. Put this kext in /Library/Extensions and remove or disable AppleIntelE1000e.kext

- **IOAHCIBlockStorageInjector.kext** - configured to make just the DVD device appear internal so iDVD player works.

- **VoodooPS2Controller.kext** (v1.8.25f) - 新定制的T420版本基于RehabMans's PS2 Keyboad/TouchPad/TrackPoint
  - **这个版本有T420的额外的定义信息.**
    ○ 调整启动帮助小红点
    ○ Jakibaki中间按钮+滚动的剪切/粘贴固定修复.
    ○ 如果MiddeMouseScroll设置为true滚动指点杆的工作原理.
    ○ Sierra PrefPane集成和其他修复(平滑和大写锁定) by usr-sse2 (see this post on GitHub)
    ○ 修改Info.plist(s)添加联想T420覆盖设置.
    ○ TrackPad pressure FingerZ value set to 47 - up from default of 30 - change to suite your touch in VoodooPS2Controller.kext/Contents/ PlugIns/VoodooPS2TrackPad.kext/Contents/Info.plist
    ○ Various Default overrides such as MouseMultiplier X and Y for TrackPoint.
    ○ 注意:VoodooPS2Controller键盘映射有3或4个手指滑动左/右后退/前进为Safari浏览器配置和空间滑动
    ○ Optional Key Map: This map works in El Capitan. Since the NX keys are in a state of flux for Sierra - it is disabled by default now. If you would want to use this new map, edit the Info.plist file and rename the T420 key map entry. The F1-F15 key mappings are VoodooPS2Controller.kext/Contents/PlugIns/ VoodooPS2Keyboard.kext/Contents/Info.key.plist:
      ▪ F1 - LCD Brightness Down(亮度)
      ▪ F2 - LCD Brightness Up(亮度)
      ▪ F3 - Mission Control App Selector(任务控制程序选择器)
      ▪ F4 - Launchpad
      ▪ F5 -
      ▪ F6 -
      ▪ F7 - Mirror Displays
      ▪ F8 - Disable/Enable TouchPad(禁用/启用触摸板)
      ▪ F9 -
      ▪ F10 - Mute Volume(静音)
      ▪ F11 - Volume Down(音量)

- F12 - Volume Up(音量)
- PrtSc - Scan Previous Track
- ScrLck - iTunes Play/Pause
- Pause - Scan Next Track
- Insert - Eject
- ~~**AppleIntelE1000e.kext** (v2.4.14) - Ethernet (gigE) - can go in /System/ Library/Extensions vs Plugins so OSX re-installations or patch updates will not delete it.~~

Optional:

- IntelBacklight.kext (v1.0.10) - RehabMan's kext for smoother/enhanced LCD backlight (dimming) control. In 10.12.4 (or later) this kext does communicate with Brightness keys or System Preferences Display Slider. So remove this kext unless on a version older (less) than 10.12.4

- AppleHDA_20672.kext (v999.99) Keep original/unmodified AppleHDA.kext and add this kext to /L/E for full audio support for CX20672 (same as CX20590). Note: requires matching DSDT sections for Conexant Codec and layoutID 12. and Kext Patch via Clover. Also has Manwe150's fix/additions for dock ports. Credit and thanks to vladichimescu. There are 2 files in AppleHDA_20672.kext/Contents/Resources
Platforms.xml.zlib.dock and
Platforms.xml.zlib.nodock
The "dock" version adds the second audio output called "Headphones" and a second Input "Line In" - both of which are on the Docking Station itself.
- IF you have a dock and want to use these ports - then just replace the Platforms.xml.zlib file with Platforms.xml.zlib.dock
- IF you DO NOT have a dock, then use the new kext as is! (and not be confused by the extra Input/Output options!!!)(这部分翻译太头疼了，完全没办法理解，大家自己理解去吧，晕)

一般笔记、修复和功能

Installing Clover:

如果你想直接使用Clover安装文件安装 Clover_v2.4k_rxxxx.pkg, 你需要选择 Clover以下几个选项.
仅安装UEFI启动版本
安装到ESP分区
主题默认
Driver64UEEFI—OsxAptioFix2Drv-64
安装后按照步骤4替换ESP内容:

- 2个clover的配置文件 (config.plist) 使用自定义的DSDT和额外的Clover 修补。

a) config.1600x900.plist - use for high-res LCD (rename to config.plist)
b) config.1368x768.plist - use for low-res LCD (rename to config.plist)

- **Model should be set to MacBookPro8,1** to get proper Graphics patching - DP/HDMI/DVI/VGA FrameBuffers
- **Clover 动态修补的 4 Apple kexts:**
  - Patch **AppleIntelSNBGraphicsFB.kext**
  - inserts a fix LCD brightness max level - now its the same brightness before and after sleep. Thanks to Timewalker75a (again!)
  - **replaces the 4th port/buffer (DVI on dock) with VGA on left side**. The 4 ports after patch are: LCD, DisplayPort on side, DisplayPort on dock, VGA on side. If you need DVI on the dock - then disable this patch! Or modify the edit scheme to change the 2nd or 3rd port (DP) to be the DVI if still want the VGA port.
  - Patch **AppleHDA.kext** to define the audio codec for the Conexant 20590/20672 chipset
  - Patch **IOGraphicsFamily.kext** - logo display fixes for startup phases
  - Patch **IOAHCIBlockStorage.kext -** adds SSD TRIM function for a 3rd Party SSD - one can use the trimforce command now
- Zip包含Clover文件自定义DSDT的必须的kexts以及kext安装脚本：_kext-install.command
- Gfx Parameter files for **Displays/Overrides** 更自然的伽玛曲线和颜色选项
- Newer Thinkpad theme - adds Mavericks, Yosemite, El Capitan, Sierra Icons than in standard clover installer.
- 特殊功能键可以使用 (without USB or Bluetooth keyboard):
  - LCD Brightness: These button pairs change brightness up/down : Fn+Home/End, ScrLck/Pause
  - Audio: The 3 buttons above F1-F3 control volume (except mic mute)
  - Insert key is the CD/DVD eject.
  - Blue ThinkVantage button - toggles fan to highest speed.
  - The Alt key is the Mac Command key and Microsoft flag key is the Mac Option key.
  - Fn+PgUp - turns on the light!

DSDT Notes - Some of the DSDT tweaks (beyond manwe150's original version) are listed here:

- DSDT includes source and binary
- The "EDID" version of dsdt.aml should override removes infamous HD 3000 glitches and buffer hangs or so-called artifacts for 1600x.900 LCD.
- Added MaxBeepBootVolume to DSDT to rid AppleHDA assertion on startup
- Shutdown fixes in DSDT _PTS and _WAK (thanks to TimeWalker75, RehabMan and Manwe150)
- Change/fixes to reset LEDs for proper sleep/wake status
- Battery fixes to use native/current ACPIPlatform.kext with Rehabman's ACPIBatteryManager.kext - no need to rollback or patch AppleACPIPlatform.kext anymore.
- PNLF additions from RehabMan provide smoother/wider LCD backlight control with IntelBacklight.kext
- DSDT mods to KBD device - renamed to PS2K and added LENOVO OEM-ids for VoodooPS2Controller to use.

- The PS2 Keyboard is identified as id LENOVO table-id T420 which will pickup the custom VoodooPS2Controller settings.
- For El Capitan, removed the _PRW method from some of the devices in the DSDT

- DSDT for "heat-step" (dsdt.heat-step.aml) has a modified method to control the fan speed vs automatically by BIOS.

  按照安装指导使用自动控制风扇转速:
  1) 复制dsdt.heat-step.aml替换默认dsdt.aml在ESP分区
  2) 安装Utilities文件夹下ACPIPoller.kext到/Library/Extensions目录
  3) 重启
  例如(自己根据命令理解，没有这么复杂):
  mkdir /Volumes/ESP
  sudo mount -t msdos /dev/disk0s1 /Volumes/ESP
  cp -a /Volumes/ESP/EFI/CLOVER/ACPI/dsdt.heat-step.aml /Volumes/ESP/EFI/CLOVER/ACPI/patched/dsdt.aml
  cd ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/Utilities
  sudo cp -a ACPIPoller.kext /Library/Extensions
  sudo chown -R 0:0 /Library/Extensions/ACPIPoller.kext
  sudo chmod -R go-w /Library/Extensions/ACPIPoller.kext
  sudo kextcache -i /

可选的:创建一个自定义SSDT

Included is a revised Pike's SSDT generation script (sdtPRgen-clover.command) and a local copy of iasl. running the script will end with making a copy of ssdt.aml into proper ESP location when mounted. Clover can build a proper SSDT for power but if you want to play with the values this may help.

- Creates P and C states to match system CPU. One can hand-edit to modify values for lower power consumption.
- Run the custom ssdtPRgen-clover.command script in Zip Utilities folder. It should ask you if you want copy ssdt.aml to your ESP ACPI/patched folder, otherwise copy/move ssdt.aml to the same location as your custom dsdt.aml which is: /Volumes/ESP/EFI/CLOVER/ACPI/patched

- Note: the script will copy the file iasl from the Utility folder to /usr/local/bin/iasl
(身体不舒服，这段不翻译了，生成ssdt变频文件，使用在终端执行以下命令：
cd ~/Downloads/Lenovo-T420-Clover-YYYY.MM.DD/Utilities
./ssdtPRGen-clover.command
需要输入管理员密码，会提示你是否复制到EFI/Clover/ACPI/Patch目录，选择Y同意，会继续询问是否打开ssdt.dsl,选N。
看看EFI/Clover/ACPI/Patch目录有没有ssdt.aml，关机重启后可以使用CPU-S查看变频是否正常)