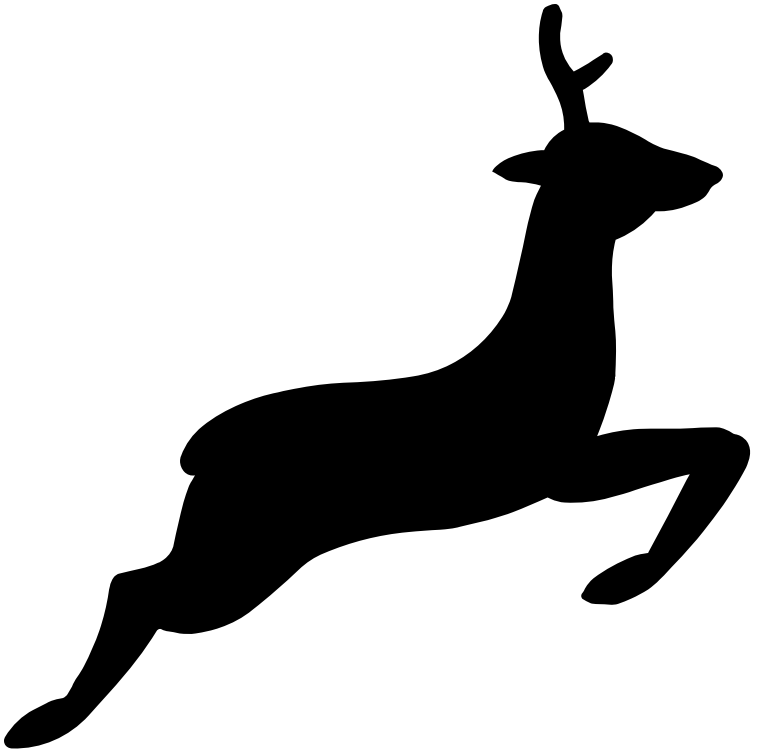

Libreboot

Free x86 boot firmware
http://libreboot.org/

What is libreboot?

- Free BIOS/UEFI replacement
  - Many people use free operating systems, but most people still rely on proprietary boot firmware
- Based on coreboot (http://coreboot.org/) with modifications
- Distribution; coreboot, GRUB, flashrom, etc

Goals

- We want everyone to use free software
  - Libreboot provides this at the firmware level
- Easy to install, easy to use
  - Coreboot is difficult to install for most people
- Support more hardware
- Well-documented (for users)
- Automation (build scripts, flashing scripts, etc)

The problem with coreboot?

- Proprietary software (most of coreboot is free)
  - Microcode updates, Video BIOS (extracted from the proprietary firmware)
  - Memory initialization, Intel Management Engine (not in coreboot), etc
  - “3rdparty” repository, for blobs (including some big ones)
  - Similar issue in the kernel, Linux (see: linux-libre)
- Difficult to use, lots of risks
  - Have to build everything from source. Build system is confusing to new users, wiki is confusing. Non-existent tech support (for users).
  - Parts from other projects also must be built from source
  - Brick risk is high (~50% probability or higher) for new users.
  - Most people give up before they even attempt to install coreboot

Linux-libre

- Libreboot uses the linux-libre “deblob-check” script to find blobs in coreboot
- Uses similar methods for updating (blobs and non-blobs file)
- Linux-libre scripts can be found at http://fsfla.org/ (FSF Latin America)
- Linux-libre is used in all FSF-endorsed GNU/Linux distributions

More than just coreboot

- Libreboot contains the following software:
  - Coreboot (proprietary blobs removed)
  - GRUB boot loader
  - Flashrom
  - Bucts
  - Memtest86+
  - Many other utilities

Payloads

- Coreboot only does hardware initialization
- Coreboot jumps to a payload once the hardware initialization is complete.
- Most common payload is SeaBIOS
- Libreboot uses GRUB by default
- There are many payloads in coreboot
  - http://coreboot.org/Payloads

GRUB boot loader

- GRUB is the default payload in libreboot
- GRUB has many benefits over SeaBIOS
  - Faster boot speeds (coreboot jumps directly to GRUB)
  - Can decrypt LUKS partitions (able to encrypt /boot)
  - Can check GPG signatures signatures (useful for the kernel)
  - Can boot kernel/initramfs directly from the flash chip (with big enough flashing space, you can put an OS in there)

You don't have to re-flash!

- GRUB is the payload, but grub.cfg can be loaded from the HDD/SSD
  - By default, libreboot's GRUB payload will switch to /boot/grub/libreboot_grub.cfg on the HDD/SSD.
  - It can also switch to /boot/grub/grub.cfg on the HDD/SSD, provided by your GNU/Linux distro.
  - *Optionally*, you can change the grub.cfg in the flash chip (the default one).

coreboot distribution

- ISO images for your favourite GNU/Linux distro
  - Everything done for you in advance
  - Easy to boot, install and use
- ROM images for your libreboot system
  - Everything built for you in advance
  - Easy to boot, install and use
  - Already tested (brick risk is minimal)

Building libreboot is easy

- git clone http://libreboot.org/libreboot.git
- cd libreboot/
- sudo ./resources/scripts/dependencies/trisquel7dependencies
- ./download everything
- ./build module all
- ./build roms withgrub
- Optional steps:
  - ./build release archives
- Takes about 30 minutes in total (or less, on faster systems)
- More info on http://libreboot.org/gitdocs/git/index.html

Installing libreboot

- ROM images are already built (you can also build from source, if you want to)
- Flashing scripts provided
- Installation instructions, designed for novice users
- http://libreboot.org/docs/install/index.html

Not a reboot library!

- “Libre” means “liberty” (“free as in freedom”)
- It's libre-boot, not lib-reboot (think “LibreOffice”)
- Lib-reboot, like libusb, libupnp, libpng, etc
- Technically, it does allow rebooting your computer (it boots, which means that you are able to reboot later on)
- As far we know, reboot libraries do not exist yet.

Not a fork of coreboot

- Libreboot works upstream as much as possible
  - Patches to coreboot are made in coreboot (gerrit site: review.coreboot.org)
  - Patches merged in upstream when possible
  - Only a small number of custom patches used in libreboot
  - Rebases on the latest coreboot, GRUB, flashrom and other parts, regularly.

Coreboot is unstable

- Coreboot uses the “rolling release” model
  - Patches sent to a gerrit site (http://review.coreboot.org/) for review, patch eventually accepted into “master”
  - You simply use the latest code from git (there are no “releases” in coreboot), which could be ***minutes*** old.
  - Code review is very strict, but doesn't always prevent regressions (build errors, bugs, booting issues, etc)
  - When you build coreboot, you can't guarantee that it will even work (bricks are possible, and common).

GRUB is unstable

- Stable releases lack features
  - Using GRUB from git is basically mandatory.
- Git version can sometimes have bugs/regressions, like coreboot
  - Again, booting issues (bricks) are possible.
- Again, rolling release (GRUB does have stable releases, but libreboot does not use them)

Libreboot tries to be stable

- Git repository is only for development (it says so on the website, in no uncertain terms).
- Stable releases made based on git, when there are no or few issues (non-blocking).
- Stable releases use tested revisions of coreboot and GRUB
  - Build issues are eliminated (or prevented)
  - Guaranteed not to create bricks (already tested)
  - Bugs eliminated or minimized as much as possible

How to help

- Documentation
  - **The** most important part of libreboot!
- New boards (added to coreboot first)
  - Equal importance to documentation
- Improve the build scripts / flashing scripts
- Feature additions, bug fixes, etc.
- Current tasks are listed on http://libreboot.org/gitdocs/release.html