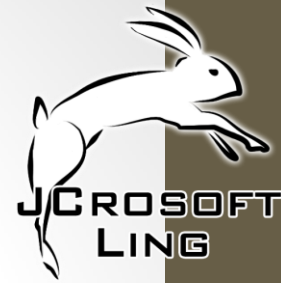




Barebox

A screenshot of a web browser displaying the Barebox website. The browser's address bar shows "barebox.org". The page has a blue header with the title "The Barebox Bootloader". On the left, there is a navigation sidebar with sections for "Barebox" (containing links for Introduction, Documentation, and Impressum) and "Resources" (containing links for Download, Git Repository, Mailing List, and IRC: #barebox (Freenode), along with flags for UK, IPv4, and Germany). The main content area features a terminal window showing the Barebox boot menu with options like [boot], [init], [***], [edit], [modules], [nfs], and [flash]. Below the terminal, it says "The Bootloader formerly known as" followed by a diagram showing "UBoot-V2" in a dashed box with arrows pointing to it. To the right of the terminal, there is a text block explaining that Barebox (formerly known as u-boot-v2) is a bootloader that inherits the best of U-Boot and the Linux kernel, and provides information on where to find the latest releases and a mailing list.

The Barebox Bootloader

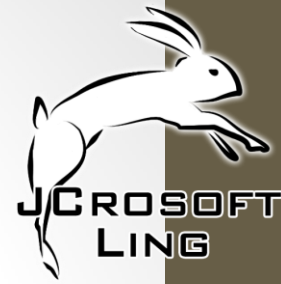
Barebox (formerly known as u-boot-v2) is a bootloader that inherits the best of U-Boot and the Linux kernel: The size and look-and-feel of u-boot, with driver model and lots of design concepts from the kernel.

You can find the latest of our timed releases in the [download](#) section. Check the repository for the most recent developments. Feel free to subscribe to the [mailing list](#). Note also the [slides](#) from the ELCE09 talk by Sascha Hauer, creator of barebox.

If you search for a kernel hacker friendly bootloader, read on!

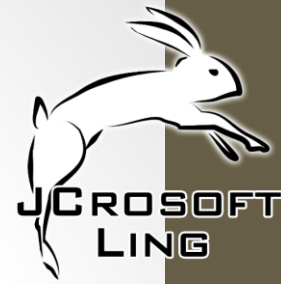
Last change: Thu May 3 09:54:22 2012
© barebox.org
<http://www.barebox.org>

BIOS / Bootloader



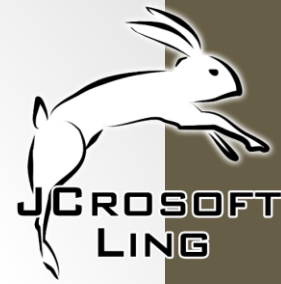
- Barebox / Redboot / U-Boot / Linux Kernel
 - Responsible for hardware bring up
 - Basic clock
 - Memory init
 - Load the kernel in memory if needed
 - Jump in the kernel

Advanced Bootloader



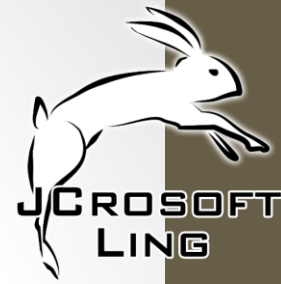
- Barebox
 - Failsafe update
 - Net boot
 - Security
 - User interaction
 - Modules
 - Menu
 - Applications (up coming)

History



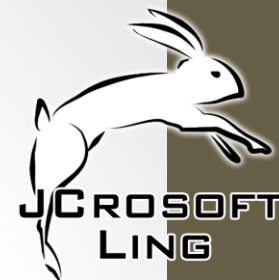
- **2007 / u-boot-v2-rc1:**
Forked from U-Boot,
as a technology study
under the “U-Boot-v2” name
- **2009 / barebox-2009.12.0**
Renamed to barebox, with
it's own infrastructure
- **2013 / barebox-2013.03.0**
49 releases up to now
- Timed releases:
about once per month
- Maintenance releases:
on demand

Development Resources



- **Website**
<http://www.barebox.org>
- **GIT Server**
<http://git.pengutronix.de/?p=barebox.git>
- **next** branch
accumulates new features
- **master** branch
next is merged into master after release
- **Mailing List**
<http://lists.infradead.org/mailman/listinfo/barebox/>

Code analysis



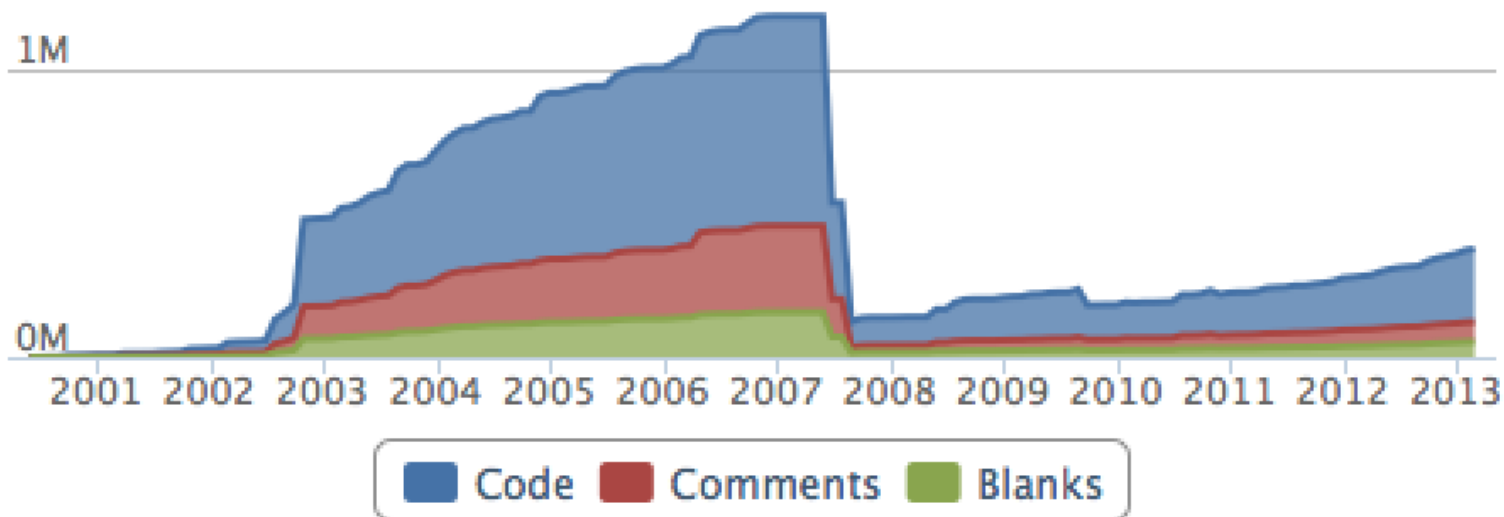
C

90%

Other

10%

Lines of Code



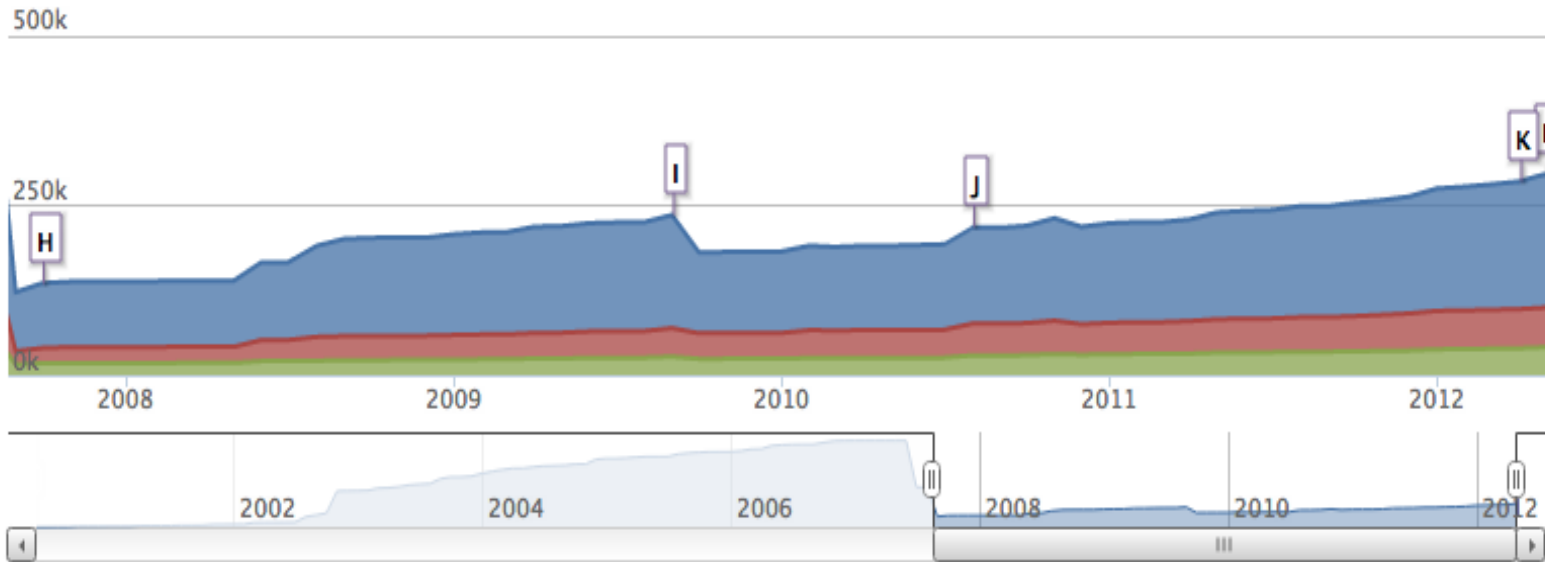
Code analysis



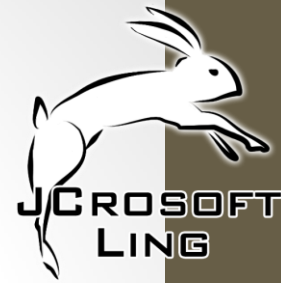
Codebase History [?](#)

Lines of Code

Zoom 1yr 3yr 5yr 10yr All

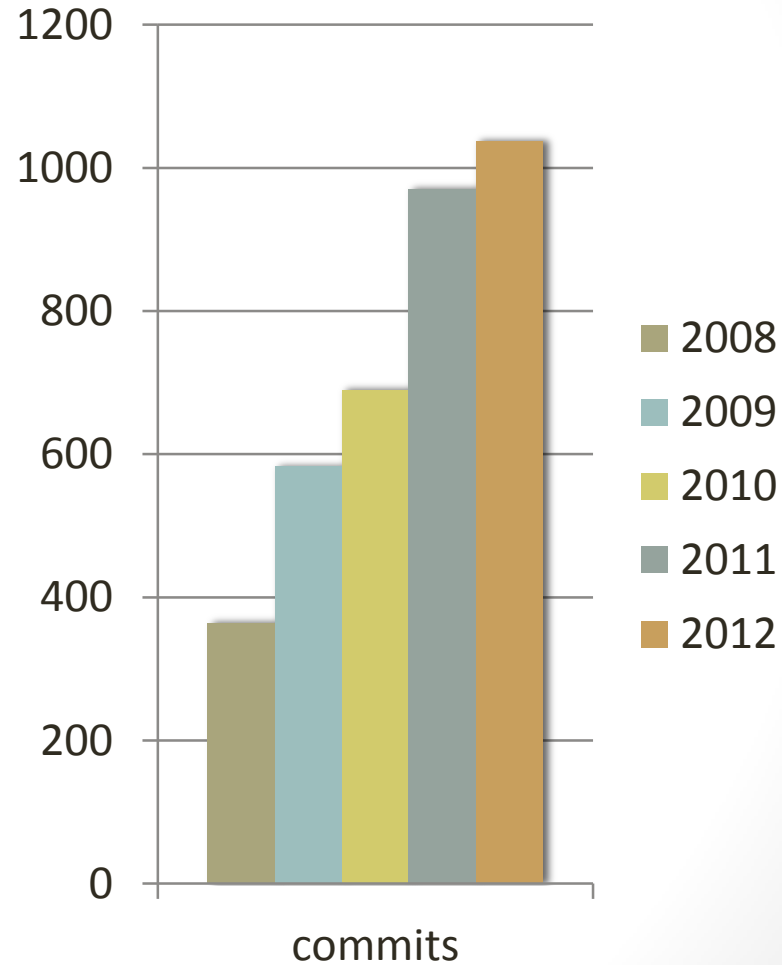


Development speed

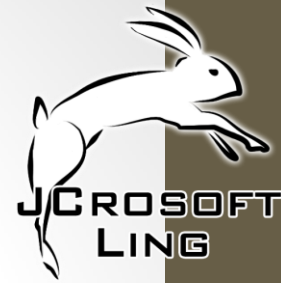


Commit History:

2008 364
2009 583
2010 690
2011 970
2012 1979
2013 439 (until now)



Development speed



30 Day Summary

Feb 2 2013 — Mar 4 2013

188 Commits

16 Contributors

including 1 new contributor

12 Month Summary

Mar 4 2012 — Mar 4 2013

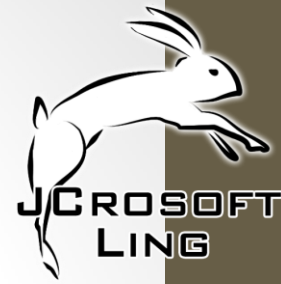
2244 Commits

Up +1016 (82%) from previous 12 months

62 Contributors

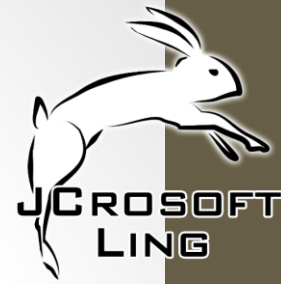
Up +14 (29%) from previous 12 months

CPU Architectures

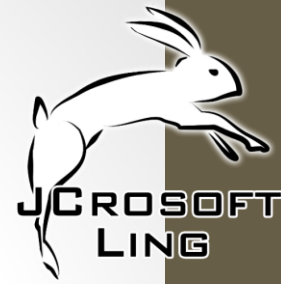


- Supported Hardware:
- arm at91, ep93, i.MX, netX, nomadik, nvidia, omap, pxa, samsung, mxs, versatile, calxeda, vexpress, zynq
- Blackfin
- mips
- openrisc
- ppc mpc5xxx, mpc85xxx
- sandbox linux
- x86 bios based

All Features on One Slide



- Build system: Kconfig, Kbuild
- Boot media: linux16, nand, ubi, sd, spiflash
- Data Transport: DFU, Kermit, X,/Y/Z-Modem, tftp, nfs
- Graphics: Framebuffer, splash screen
- Filesystem: cd, ls, cp, saveenv/loadenv, mount, partitions
- Tools: crc, edit, gpio, unlzo
- User interaction: login, menu, password, application
- Drivers: i2c, mfd, flash, serial, spi, usb host+device
- Modules: insmod, lsmod
- Memory: meminfo, memtest, md, mw
- Network: ipv4, dhcp, netconsole, tftp, rarp, ping, nfs, dns
- Binfmt, complete, hush common env

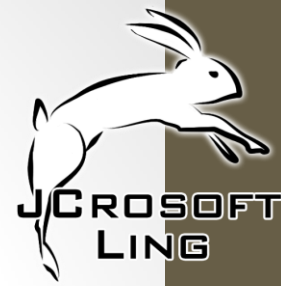


Menu

- This kind of menu is very useful when you do not have a keyboard or a serial console attached to your board to allow you to interact with barebox

For the developer part,
The framework introduce two API

1. C
that allow you to create menu, submenu, entry and complex menu action
2. Command
that allow you as the C API to create menu, submenu, entry and complex menu action but this time the actions will be store in a function and then be evaluated and executed at runtime.

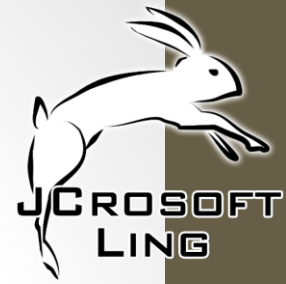


Menu example

Welcome on Barebox Boot Sequence

- 1: **Boot**
 - 2: boot (default)
 - 3: boot from nand
 - 4: boot from nfs (kernel nfs)
 - 5: boot from nfs (kernel tftp)
 - 6: **Command**
 - 7: shell
 - 8: update
 - 9: **reset**
- Auto Select in 5

Applications

A large red rectangular area with a black border. Inside, there is a smaller gray rectangular area with a dashed border. The gray area contains the text "test@" in red, followed by "test1", "test2", and "test3" in black. At the bottom of the red area, the word "test" is written in black on a light gray background.

test@

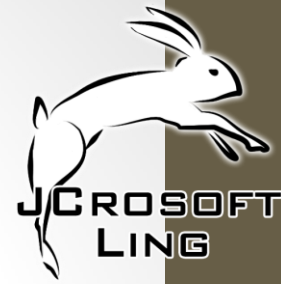
test1

test2

test3

test

Applications



- Based on syscalls
- Binary ABI
- Libc
- Curses (menu, panel, form)



Let hack



Questions?