Buildroot BOF

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What is Buildroot?

- Buildroot is an embedded Linux build system
- It automates the process of downloading, extracting, configuring, compiling, installing and integrating the different components of an embedded Linux system
  - Makes your build reproducible
  - Makes your build easier, because Buildroot integrates known-working recipes and patches fixing issues encountered by other users
- Buildroot generates one or several of
  - The cross-compiling toolchain
  - The root filesystem from a very basic Busybox-based filesystem to a more complicated filesystem based on the hundred of packages supported
  - The kernel image and the bootloader image
Technically

Buildroot is

- Written entirely using Makefiles.
- Uses the kconfig configuration system, providing menuconfig and xconfig interfaces to select the different options.
Buildroot history

- Buildroot has been initially developed by uClibc developers.
- For a long time, it had no maintainer
  - No releases were delivered
  - No real community support, no attention to bug reports and proposed patches
  - No review of integrated patches, leading to cluttered and over-complicated things
- Since January 2009, Buildroot now has an official maintainer, Peter Korsgaard
  - New releases shipped every 3 months: 2009.02, 2009.05 and 2009.08 so far
  - Much more active community
  - Cleanup process going on
  - Switch to Git
Since January 2009

- Improvements to the external toolchain support, including glibc support
- Support for the Xtensa architecture
- QT based configurator (make xconfig)
- Major simplification of Buildroot generated tree
- Lots of packages added, obsolete packages removed, dozens of packages updated or fixed
- Better independence from host tools, which makes Buildroot more robust
A lot of cleanup

- Integration of bootloaders and kernel build, external source toolchains

Testing

- BuildBot going to be set up in order to guarantee that a set of well-known configurations build properly

Support for external packages and boards

- Will allow companies or projects to keep their packages and boards out of the tree in a nice way

Support for partial rebuilding and package removal

- Keep the toolchain, rebuild only the root filesystem
- Remove this or that without recompiling everything

Better support for external toolchains
Maybe integration with Crosstool-NG for toolchain generation

Simplification of package makefiles
  Ease integration of new packages
  Allow package-wide operations to be easily inserted
Your needs?

- Are you using Buildroot?
- For what kind of projects?
- In your opinion, what are Buildroot strengths and weaknesses?
- What should we improve/implement in Buildroot?

We have scheduled a **Buildroot Developer Day** on Saturday to let Buildroot developers meet and discuss your proposals.

*Sponsored by Calao Systems and Free Electrons.*
Questions?

http://www.buildroot.net