Bringing kconfig to EGLIBC

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EGLIBC?

- Variant of GNU C library for Embedded systems
- Binary compatible with GNU C library
- Aims to be reducing size, configurable, better cross- compilable
- Used in major distributions e.g. Debian, OpenEmbedded etc.
- http://www.eglibc.org
Configurability

- Home-grown mechanism for configuration handing
- Option Groups
  - based on POSIX.1-2001 specification
- Resembles kconfig somewhat
Option Groups

- Documented in libc/option-groups.def
- `option-groups.config` at top-level
  - Enable `OPTION_GROUP_NAME = y`
  - Disable `OPTION_GROUP_NAME = n`
- Default defconfig is `option-groups.defaults`
  - Default is to enable all groups
Option Groups at work

- size of libc-2.17.so reduced from 1.2M -> 830K
- size of ld-2.17.so 128K -> 120K
- libm-2.17.so 610K -> 580K
What's missing

- No sanity checking of eglibc config
kconfig eglibc patch

- kconfig support patches are on eglibc-patches ml
  - OpenEmbedded has been forward porting them since 2.15
kconfig in EGLIBC

- Requires kconfig-frontends
- Provides out-of-tree kconfig infrastructure
- Supports conf, mconf, nconf, gconf and qconf
- Releases with every major kernel release
Enabling kconfig in EGLIBC

- Configure EGLIBC with --with-kconfig=<path/to/kconfig>
- make config
kconfig EGLIBC

- Preprocessing tool
  - libc/options-config/config-preproc.pl
  - Replace “CONFIG_” with “OPTION_”
kconfig EGLIBC

• Post-processing tool
  • libc/options-config/config-postproc.pl
  • Converts “# CONFIG_FOO is not set” -> “CONFIG_FOO = “n”
  • “CONFIG_” is converted back to “OPTION_”
Current State

• Patches discussed on EGLIBC mailing lists
• Pending addressing the reviews
• Could be a good feature for GNU libc
Thank you