

GNU Tools Cauldron 2015

and

aarch64 updates

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GNU Tools Cauldron 2015

- 4 day workshop for GNU tools developers
 - 3 days dedicated for presentations, tutorials and BoFs divided into 2 tracks
 - People from various companies (Google, Intel, IBM, Red Hat, etc)
 - Main GNU tools project include GCC, GDB, binutils and glibc
 - All information available: <https://gcc.gnu.org/wiki/cauldron2015>

Content (#1)

- **Kirill Yukhin:** OpenMP 4 Offloading Features implementation in GCC
- **Hafiz Abid Qadeer:** What is new in DWARF5
- **Michael Meissner:** Gnu PowerPC support in 2015
- **Siddhesh Poyarekar:** Tunables for the C Library
- **Jan Hubicka:** LTO BOF
- **Dodji Seketeli, Sinny Kumari:** ABI comparison with Libabigail based tools: state of the onion
- **Olga Golovanevsky:** Memory Layout Optimizations of Structures and Objects

Content (#2)

- **Martin Jambor:** Compiling for HSA accelerators with GCC
- **Martin Liska:** Inter-procedural Identical Code Folding in GCC
- **Nathan Sidwell:** OpenACC
- **Andreas Arnez:** Debugging versus hardware transactional
- **Torvald Riegel:** Updating glibc concurrency
- **James Pallister, Jeremy Bennett:** GNU Superoptimizer 2.0
- **Siddhesh Poyarekar:** glibc microbenchmarking and whole system benchmarking BoF
- **Bill Schmidt, Michael Gschwind:** Supporting Vector Programming on a Bi-Endian Processor Architecture

aarch64 (#1)

- The following patches were posted/integrated based on my Bugzilla reports:
 - [Binutils][AArch64] Long branch veneer support for symbol defined by --defsym (**APPROVED, COMMITTED**)
 - [Binutils][AArch64] PR18668, Generate long branch veneer if call to plt stub is out of range (**APPROVED, COMMITTED**)
 - [GCC][RFC AArch64][PR 63304] Handle literal pools for functions > 1 MiB in size (**POSTED** on mailing-list, **NOT_APPROVED**)
- These are needed to allow building enormous DSOs. In particular OpenLoops, MCFM, GEANT4 to ROOT geometry (C++) files
- Kudos to ARM Ltd. developers and managers for taking a look and fixing issues

aarch64 (#2)

- Official statement that RHELSA 7.1 is NDA-free (i.e. public) has been received (forwarded to Liviu and Robert)
- Binutils fix for CVMFS was accepted to RHELSA 7.2, but actual release date is unknown (confidential)
- Liviu provided me with m400 firmware images and documentation that I could setup a couple more m400 nodes with RHELSA 7.1 (one for CVMFS, one of CMS Computing as CVMFS installation node)

aarch64 (#3)

- CMSSW_7_6_X still is not aarch64-capable due to delayed migration to ROOT 6.04.XX (I met with Axel today and he hopes to finish debugging by tomorrow's evening)
- First look at 4K (x86_64) and 64K (aarch64) memory consumption
- MALLOC_CONF (CMS default) is not suitable for 64K pages (heavily increases memory consumption)