# Where art thou, LDC?

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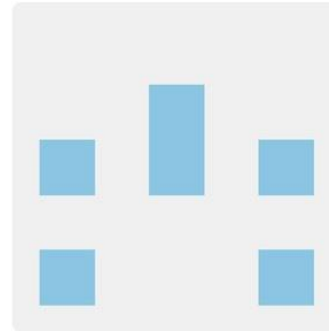
# The LDC team

David (klickverbot)

Johan (JohanEngelen)
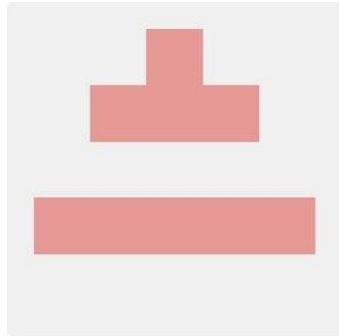
Martin (kinke)

Nicholas (thewilsonator)

Kai (redstar)

Rainer (rainers)

Joakim (joakim-noah)

Joseph (WebDrake)

Dan (smolt)

… and many more contributors!

# What happened since last DConf

- 'Usual' updates
  - New D frontend, new LLVM version, bug fixes

- Lot of performance improvements
  - Profile guided optimization (PGO)
  - Link Time optimization (LTO)

- Support for non-Intel platforms matures
  - ARM and PPC improvements
  - Cross-compiling improvements

# What happened since last DConf

- New features
  - Traits and attributes for optimization control
  - Support for aggressive math optimization
  - Experimental cross-module inlining

- More distribution packages

- Removed dependency on libconfig

# The state of affairs with LDC

- Frontend up to date
  - 2.073.2 in beta stage (LDC 1.3)
  - 2.074.0 already integrated (LDC 1.4)

- Support for a wide range of platforms
  - Different CPU and OS
  - Includes runtime support

- Latest LLVM support

# Ongoing development

- DCompute integration

- Cross-linking support with LLVM tools
  - LLD integration

- More platform support
  - AArch64, ARMv5, RISC-V, …

- JIT-compiled functions

# External projects

- People use/integrate LDC into other projects

- Tell us about your project!

- Can we distribute it with LDC?

# Projects based on/using LDC

- Calypso: direct interfacing with C++
  - Enhanced LDC compiler

- Emscripten: An LLVM-to-JavaScript Compiler
  - Experimental ports to use LDC output

- Distribution packages
  - Snap, FreeBSD ports, Guix, …

# My idea #1: More D

- Replace C++ glue code with D
- Requires D bindings for LLVM C++ API

- Challenges
  - Different semantics between C++ and D
  - Name mangling issues

- Vision: Distribute D wrapper with LLVM

# My idea #2: cent/ucent

- 128bit integer datatypes
- Specified but not implemented in DMD

- Useful for
  - crypto algorithms
  - large floating point support

- Partial hardware support (PowerPC)

# My idea #2: cent/ucent

- Implementation based in LDC 1.0 available
  - Linux only
  - Concerns about memory footprint
  - Druntime/Phobos support already upstreamed

- Bootstrap requires cent/ucent support
  - How to do it with DMD?

- Requires changes of test cases
  - Not yet done

# Questions?