GCC
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GCC

• Overview
• Recent Changes
• Coming Attractions
Overview - Technical

- State-of-the-art industrial compiler
- System compiler for Linux distributions
- Front ends for C, C++, Objective-C, Ada, Fortran, Java, ...
- Back ends for nearly everything
- Millions of lines of code
Overview - Social

- 158 developers this year
- Serves many communities
  - By language
  - By platform
- Development funded by many companies
Recent Changes – General Trends

• Up-to-date language conformance
• Stricter language conformance
• Better compiler performance
• Better compiler output
• More features
Recent Changes - 4.3

• Better optimizations
  ... watch out for signed overflow
• Experimental support for C++0x
  · Rvalue references
  · Variadic templates
• libstdc++ parallel mode
• Early inlining
Coming Attractions - Tuples

- New representation of GCC IR
- Reduces memory use
- Simpler streaming for ...
Coming Attractions - LTO

• Link-time optimization
• Saves intermediate representation to disk
• Optimizes across file boundaries
Coming Attractions – Incremental Compiler

• Compiler runs as server
• Recompiles only the functions that have changed
• Fast turnaround times
• Extract interesting meta-data from compiler
Coming Attractions - Miscellaneous

- More work on C++0x
- OpenMP 3.0
- Better debug info
  - Important for systemtap, frysk
- New register allocator
More Information

- http://gcc.gnu.org/