



Intellectual property issues in GCC

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Who am I

- Compiler person
- GCC Maintainer
- Intellectual property lawyer



Disclaimers

- None of this is official policy of
 - FSF
 - GCC
 - Google
 - Anyone you can think of
- These are just observations of how the processes involved work.
- **None of this is legal advice, and I am not your lawyer**



Overview

- Quick intro to GCC project structure
- Copyrights and licensing
 - Policies on copyright for code being contributed
 - Using code from other projects
 - Using other projects themselves
- Patents
 - Policies on use of patents
 - Policies for contributing code that is patented
- Hypothetical Examples
 - LLVM
 - Open64



Structure of the GCC project

- FSF
- GCC Steering Committee
- Maintainers
- Write after approval
- Other contributors



The dirty secret

- Rarely do legal problems seriously get in the way of contributing code
- Almost all problems are either technical, political, or social
 - Getting FSF to allow us to do something
 - Convincing someone you have the right design
 - Getting buy in from the community



Copyrights

- All of GCC is copyrighted by the FSF
- Contributing code directly to GCC requires copyright assignment
- Contributing libraries to GCC requires copyright assignment



Licenses

- GCC is licensed under the GPL
- Code contributed directly to the core of GCC must be GPL'd
- Code used directly by the core of GCC must be GPL'd
- Other portions vary
- GPL exceptions



Using other projects in GCC

- GCC incorporates libraries maintained elsewhere
 - GMP multiprecision library for fortran
 - Classpath for java
 - Libffi
- We have rules related to using these external libraries
 - Who maintains them
 - Where patches go



Patents

- Patenting algorithms being put into GCC
 - Generally allowed
 - Certain requirements
- Using patented algorithms in GCC
 - Trickier situation
 - Some code in GCC predates most interesting compiler patents



Patents

- Requirements of companies contributing code
 - Need to contribute patents in some manner
 - We will not accept code otherwise
- Requirements of individuals contributing code
 - Don't contribute code known to have serious patent problems
 - Mostly depends on what the FSF is okay with



Hypothetical example - Open64

- Convince community we want to go this route
- Fix current license
- Contribute patents and code



Open64 - Convince community

- Most would be skeptical
- Gives some platforms obvious advantage
- NIH
- C++ and code cleanliness
- Learning curve



Open64 - Fix license

- Current license is very strange
 - Purports to be GPL with an exception
 - Unacceptable anyway due to patent issue
- Not clear who to contact, since the address listed is now Google



Open64 - Contribute patents and code

- Assign copyright and patents to FSF
 - Lawyers are generally lazy
 - Will likely take forever to get them to sign necessary documents
- Otherwise easy
 - Decide what to do about maintainership
 - Integrate code into GCC mainline
 - Fix breakage
 - Profit



Hypothetical example - LLVM

- Convince community we want to go this route
- Relicense under GPL
- Contribute code



LLVM - Convince community

- C++ issue
- NIH
- Learning curve
- Reimplementation of some optimizations
- Question of what to do about backends
- **HOWEVER**



LLVM - Convince community

- Community has so far been either positive or indifferent
- Some want more implemented before they are willing to accept it



LLVM - Relicense

- Currently owned by UIUC
- Moving to being owned by an independent LLVM organization.
- No real issues in relicensing except pushing people



LLVM - Contribute code

- Only a few parts of LLVM have any real patent issues
 - None of these issues would affect GCC's usage unless backends were replaced
- Thus, easy
 - Decide what to do about maintainership
 - Integrate code into GCC mainline
 - Fix breakage
 - Profit