INDES – IDS BV
Gerard Fianen

C, C++, EC++ Compilers, Source-level Debuggers
Debug probes, Real-Time Tracing
RTOS, Protocol Stacks, Middleware

Static Analysis, Timing Analysis, Stack Analysis
Unit Test, Code Coverage, System Test
Test & Verification as-a-Service

“The choice of professionals”

Still testing to try to catch an error?

Formal verification helps you to **guarantee** there are **zero** errors!

Formal Verification

- ☑ Proof versus best-effort
- ☑ Better code
- ☑ Saves time in testing
- ☑ Guaranteed zero run-time errors
- ☑ Guaranteed system response times
- ☑ Can reduce memory size
- ☑ Lowers certification risk

CompCert™
Formally verified optimizing C compiler

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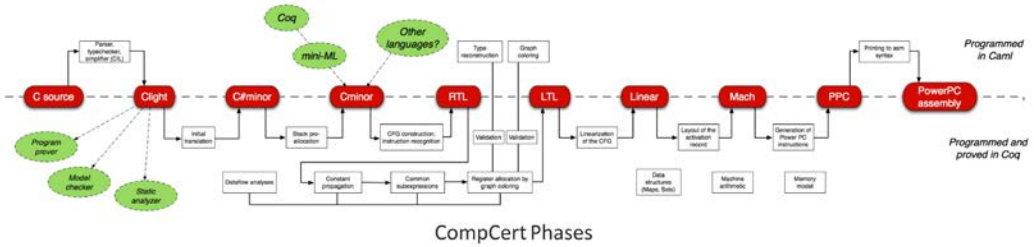
verified compilation

you can trust...

...your compiler!

- **Mathematically proven** to be exempt from miscompilation issues
- The code it produces is proved to behave **exactly** as specified by the semantics of the source C program

AbsInt



CompCert Phases

Astrée™ and RuleChecker™

Guaranteed to detect **all** runtime errors, data races, deadlocks, and other critical errors

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- If the analysis does not detect any errors, the absence of runtime errors has been **proven**
- **Proof** based on Formal verification of the source code using Abstract Interpretation

AbsInt

aiT™ WCET Analyzer

Guaranteed safe upper bounds on worst-case execution time

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timing verification - timing optimization

is your program...

...fast enough?

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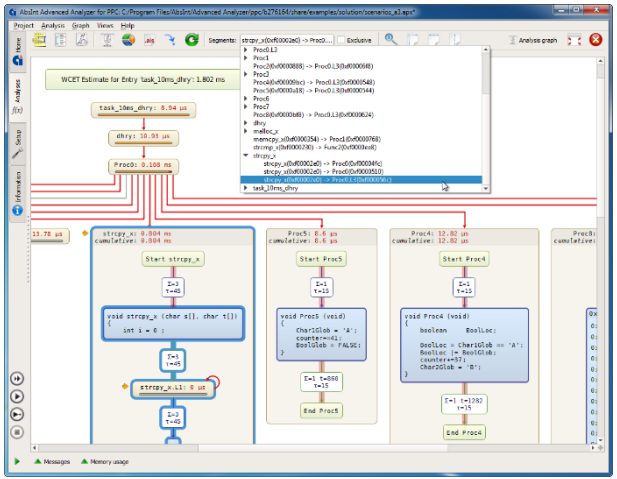
Proof based on Formal verification of the object code using Abstract Interpretation



StackAnalyzer™
Control-flow reconstruction directly from binary code.

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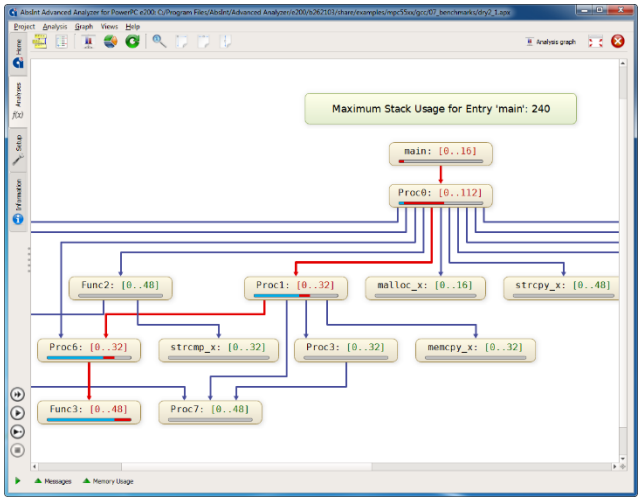
Proof based on Formal verification of the object code using Abstract Interpretation



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Verification of outsourced software

Verification-As-a-Service

Send us a sample!

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