WIND RIVER

Wind River Compiler

Companies developing embedded devices are looking to increase productivity, meet challenging schedules and reduce project risks. Software developers must contend with fitting more complex applications into the same memory space and adding new capabilities while maintaining real-time performance. The choice of embedded tools has a significant impact on these goals, and an embedded cross-compiler is a key piece of every embedded development environment, affecting every piece of C or C++ code written for a project. The choice of a compiler can determine the overall software footprint of the device software and also have a significant impact on the performance of an embedded system.

The Wind River Compiler tool suite (formerly known as the Diab Compiler) includes software development tools, such as a C/C++ compiler, an assembler, a linker, ANSI C/C++ standard libraries, profiling tools, and an instruction set simulator. It is based on the industry-proven Diab Compiler technology and has a well-known track record for generating reliable, compact, and fast-executing code for thousands of designs and millions of devices. Wind River Compiler also provides the control and flexibility required to meet the demands of embedded software development, allowing developers to incorporate Wind River Compiler into any build environment. The compiler offers numerous options for controlling code generation and optimizing for size or performance.

Product Highlights

Wind River Compiler provides the following capabilities to embedded software developers:

- Faster-executing code and smaller software footprints
- Reliable, stable, and field-tested code generation technology
- Compliance with the latest ANSI and ISO standards for C and C++
- Flexible control of options and build characteristics
- Multiple business models to fit customer needs
- Support for a wide variety of target architectures
- Responsive and knowledgeable support and special services

Benefits

High Performance

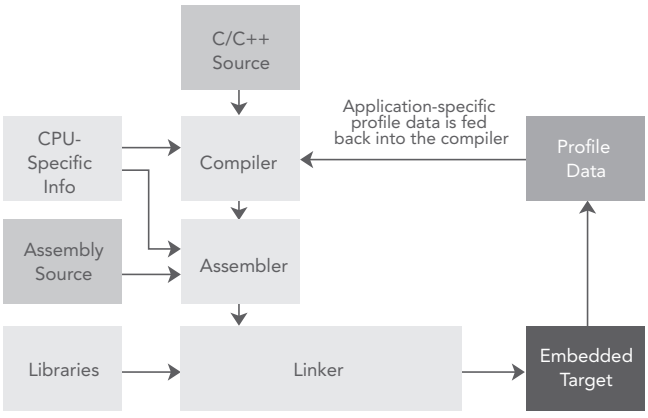
Wind River Compiler uses sophisticated optimization technology to generate exceptionally fast, compact, high-quality object code. This reduces development costs and improves the competitive position of our customers' products by doing the following:

- Reducing hardware costs, allowing you to use highly optimized code to drive lower-power devices and use less memory than your competition, improving the profitability of your product
- Helping you develop applications that run faster and include more functionality and features than your competition, making your product more desirable to the market
- Improving time-to-market and reducing risk by eliminating the need to hand-optimize code at the last minute to meet aggressive performance goals, ensuring your product will be first to market

Wind River Compiler uses a wide range of highly refined global, local, processor-specific, and application-specific (profile-driven) optimization techniques to generate code that runs faster with a smaller footprint. Wind River Compiler's whole program optimization permits the compiler to inline functions across multiple modules and source files, significantly boosting performance. Profile-driven optimizations employ the compiler's capability to instrument the code and collect profile information specific for the application being developed. This information is then fed back into the compiler, enabling it to better perform function inlining, register allocation, branch prediction, and other optimizations, further improving the application performance and footprint.

Flexibility

Embedded devices differ in the processors and microcontrollers in use, the amount and types of memory available, interfaces and peripherals, operating systems, and development environments. This means every embedded developer faces challenges that are unique to their projects.



Profile-driven, application-specific optimizations

Wind River Compiler lets you control the compiler's output to match an application's requirements. For example, you can do the following:

- Select various optimizations to balance execution speed with code size
- Use multiple debugging options, depending on how much memory is available on the target device
- Generate position-independent code (PIC) or position-independent data (PID)
- Generate packed and byte-swapped data structures
- Generate PROMable code
- Create a large number of data sections for customized memory layouts
- Use absolute addressing or the extensive memory mapping capabilities included in the compiler to target devices with unique memory layouts and constraints

Reliability

Mission-critical applications, such as those used in automotive and aerospace and defense (A&D) industries, require absolute reliability from the code running on the system and the software tools that generate this code—the compiler in particular. To minimize defects, code must be rigorously tested and must conform to standards. Wind River Compiler has been used in many mission-critical applications in aerospace, avionics, defense, automotive under-the-hood, medical, and industrial industries.

With more than 20 years of technology investment, Wind River Compiler has been thoroughly tested in the field and in Wind River's own test lab. Wind River Compiler has achieved certified conformance to the POSIX PSE52 standard. In addition, it is used to compile code for Wind River's VxWorks Do-178B and IEC 61508 certified platforms. This experience and stability significantly reduces the risk of selecting a compiler for your mission-critical application.

Standards Compliance

Wind River Compiler uses the Edison Design Group's compiler front end to ensure full compliance with the most recent ANSI/ISO C and C++ compiler standards including the following:

- ISO/IEC 9899:1990 ("C89") standard
- ISO/IEC 9899:1999 ("C99") standard
- ISO/IEC 14882:2003(E) C++ standard

Flexible Business Models

Wind River Compiler complements its technical advantages with a choice of proven business models. Under our Enterprise License Model, the platform is offered as an annual per-developer subscription, applicable across the enterprise and any target architecture supported by the compiler. This flexibility allows pervasive use of the compiler across many development projects. The subscription includes Wind River support and all product updates. Our Perpetual License Model provides a model for companies desiring project-based licensing for a single supported architecture.

Target Architecture Support

Wind River Compiler supports a wide range of embedded architectures, enabling processor-specific optimization. With enterprise licensing, companies can have access to any of these compilers with a single license. This allows companies to get the best return from their compiler investment and provides continuity when migrating from one architecture to another. Supported architectures include the following:

- ARM/ARM Thumb and Thumb2
- ColdFire/68K
- Intel
- M•CORE
- MIPS
- PowerPC
- Renesas SuperH
- SPARC, SPARClite
- TriCore
- XScale

Visit www.windriver.com/products/development_suite/wind_river_compiler for a current list of supported processors.

Support Services

Wind River provides expert technical support for our development solutions, including Wind River Compiler. Our products are backed by the most comprehensive customer support network in the embedded software industry.

In addition to standard support, Wind River offers Long-Term Support Services for Wind River Compiler customers. Long-Term Support lengthens the support window beyond the standard product life cycle to meet needs that require special support and maintenance services. In addition, the service provides custom bug-fixing and quality assurance to minimize the impact of compiler changes to your code. Contact Wind River Customer Support (www.windriver.com/support) or your account manager for more details.

How to Purchase Wind River Solutions

Visit www.windriver.com/company/contact-us/index.html to find your local Wind River sales contact. To have a sales representative contact you, call 800-545-9463 or write to inquiries@windriver.com.

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