**Rational**® software

# IBM Rational Ada Developer family

- *Comprehensive Ada 95/83 and UNIX-based C/C++ development environment*

- *Integrates editors, optimizing compilers, multi-lingual debugger, configuration management, code browsing, visual modeling, and process automation tools*

- *Host support includes all major UNIX platforms plus Windows NT*

- *Integrated with a mature production quality C/C++ compiler for developing mixed language applications*

- *Provides host-consistent user interfaces and uniform compilers and debuggers*

- *Supports embedded, real-time, and cross-platform development*

- *Target processors include PowerPC, MIPS, M68K, Intel x86 family, and the radiation hardened RH-32*

IBM Rational Ada Developer is the industry's development environment of choice for Ada and mixed Ada/C/C++ applications. Powered by IBM Rational Apex, this product provides a single, scalable environment that integrates design, implementation, testing, configuration management, and process management for even the largest application development projects. It provides the industry's best uniform solution for creating and deploying multi-platform UNIX and Windows NT Ada applications.

IBM Rational Ada Embedded Developer extends the development experience into embedded target environments. This powerful cross-development system combines the host environment with time-tested embedded technology for host-to-target development of real-time embedded systems. The result is the most powerful Ada development environment for embedded systems ever available.

## Comprehensive integrated development environment

Rational Ada Developer is designed specifically for large teams. Such teams have automated tooling needs that go beyond that of a compiler and debugger. Rational Ada Developer supports the full lifecycle of development needs, from visual design to testing. And all of these tools are integrated in one common environment, making for the most productive development experience available today.

## Architectural Control

Rational Ada Developer provides unique architectural control features that are essential for developing and managing large-scale applications. Such applications are difficult to design, and when improperly architected, are even more difficult to maintain. Rational Ada Developer ensures architectural integrity of the design throughout the software lifecycle.

- *Offers choice of real-time operating systems, including Wind River's VxWorks (and VxWorks AE) and LynuxWorks' LynxOS*

- *Provides comprehensive support for target-level debugging*

- *Host-based instruction-set simulation for PowerPC, MIPS, and RH32*

- *POSIX-compliant interfaces*

- *Integrated standardized test generation and management*

- *Integrated visual modeling, source code generation, and reverse engineering of existing source code using industry-standard UML notation*

- *Integrated defect tracking and change management*

- *Offers a consistent development environment across multiple hosts and targets*

- *Offers support for safety-critical applications*

**Integrated configuration management**

Large applications typically have special needs for configuration management. Managing change becomes extremely complex with the addition of more development staff. Rational Ada Developer includes unique technology for controlling versions and configurations in such an environment, leveraging architectural subsystems that reside above the programming language constructs. Rational Ada Developer is also integrated with IBM Rational ClearCase for customers who already invested in a CM solution from IBM.

**An integrated embedded development solution**

Rational Ada Developer supports embedded cross-compilation as well as native compilation. Based on its unique technology, Rational Ada Embedded Developer seamlessly extends the host-based development tools to working directly on the target execution platform. The result is less redundancy in development tools, higher productivity, and less re-work needed from modifications.

**A track record of best practices**

Rational Ada Developer is more than just a set of loosely integrated development tools. These tools were designed specifically for large-scale team-development of applications that have a long life-cycle. Such applications can survive only when they are developed with sound software engineering best practices in mind. Only IBM Rational Ada Developer addresses the fundamental issues surrounding the challenges of large-scale modern software engineering.

**Family Feature Matrix**

| Component | Description | Rational Ada Developer Enterprise Edition | Rational Ada Developer | Rational Ada Embedded Developer Enterprise Edition | Rational Ada Embedded Developer |
|---|---|---|---|---|---|
| Apex Duo Native | Integrated development environment for host-based Ada 95/83 and mixed Ada/C/C++ development | X | X | X | X |
| Summit TM | Integrated activity and task management | X | X | X | X |
| Summit CM | Integrated configuration management | X | X | X | X |
| Integration with IBM Rational ClearCase | Integration with the world's leading configuration management system | X | X | X | X |
| Rational Rose | Visual modeling for Ada and C++ | X | | X | |
| TestMate Duo | Integrated host platform testing for Ada and C/C++ | X | | X | X |
| TestMate Cross | Cross-platform testing for Ada | | | X | X |
| TestMate MCDC | Structural testing (statement, decision, MCDC) | | | X | X |
| Apex Embedded Duo | Integrated development environment for cross-platform Ada 95/83 and mixed Ada/C/C++ development | | | X | X |
| Instruction Set Simulator (IS SIM) | | | | X | X |
| Ethernet support (EneT) | | | | X | X |
| Patching linker | | | | X | X |

**Features & Benefits**

| Feature | Description | Benefit |
| --- | --- | --- |
| Controlled iterative development | Smaller increments of change can be edited, built, tested, and deployed. | Reduces risk, improves time-to-market |
| Object-oriented technology | Environment supports notion of encapsulating information and restricting access and manipulation to only meaningful operations. | Simplifies communication about real-world constructs; Improves reliability of accessing and changing data |
| Architecture-based design | Includes facilities for creating software structures (subsystems) larger than that provided by the programming language itself. | Fosters large-scale software reuse; Creates software that is adaptable in response to changing operational conditions |
| Iterative testing throughout the | Testing tools provided directly within development environment allow for frequent development lifecycle | Bugs are found sooner, corrected more cost-efficiently developer-led testing. |
| Integrated development environment | All tools needed for developer are organized as integral parts of the development environment. | Less switching between multiple disparate tools |
| Integrated Configuration Management | CM commands and facilities built into development environment | Manages parallel development simply and without high overhead.; CM system more transparent to developers, less intrusive to work activities |
| Architectural Control | Manages dependencies between source files at a level higher than that provided by the programming language itself | Maintains architectural integrity of application amidst changes;  New features are introduced with less side-effects |
| Incremental Compilation and Fast Path Recording | Compilation system analyzes actual code changes to reduce effort required to rebuild an application | Dramatically reduced system build times; optimal code generated |
| Same host/target developement environment | Same set of tools, same interface for developing host applications and embedded target applications | Increased productivity of developers, higher reliance on host-based developement/testing for embedded applications |

## IBM Rational Ada Product Family
Platform Support

|  | Solaris | Linux | HP-UX | IRIX(SGI) | Tru64(Compaq) | AIX (RS/6000) | Windows |
|---|---|---|---|---|---|---|---|
| IBM Rational Ada Developer Enterprise Edition | X | X |  |  |  |  |  |
| IBM Rational Ada Developer |  |  | X | X | X | X | X |
| IBM Rational Ada Embedded Developer Enterprise Edition | X | X |  |  |  |  |  |
| IBM Rational Ada Embedded Developer Enterprise Edition | X[1] |  |  |  |  |  | X[1] |
| AXI for IBM Rational Ada | X | X | X | X | X | X |  |

## IBM Rational Ada Embedded Product Family
Target Architecture Support

|  | PowerPC | MIPS | x86 | M68K | RH32 |
|---|---|---|---|---|---|
| IBM Rational Ada Embedded Enterprise Edition | X |  |  |  |  |
| IBM Rational Ada Embedded Developer | X[2] | X | X | X | X |

## IBM Rational Ada Embedded Product Family
RTOS Support

|  | Rational Exec | Wind River Tornado II | Wind River Tornado AE | LynxWorks LynxOS |
|---|---|---|---|---|
| IBM Rational Ada Embedded Developer Enterprise Edition | X | X | X | X |
| IBM Rational Ada Embedded Developer | X | X[1] |  |  |

[1] Support for Tornado is not available for the RH32 Architecture

[2] This package supports the PowerPC Family on the Windows Platform only. Solaris and Linux support is available with IBM Rational Ada Embedded Developer Enterprise Editor.