IAR Embedded Workbench® for RX

IAR Embedded Workbench is a set of highly sophisticated and easy-to-use development tools for embedded applications. It integrates the IAR C/C++ Compiler™, assembler, linker, librarian, text editor, project manager, and C-SPY® Debugger in an integrated development environment (IDE). With its built-in chip-specific code optimizer, IAR Embedded Workbench generates very efficient and reliable FLASH/PROMable code for the Renesas RX MCU. In addition to this solid technology, IAR Systems also provides professional worldwide technical support.

MODULAR AND EXTENSIBLE IDE

- A seamlessly integrated environment for building and debugging embedded applications
- Powerful project management allowing multiple projects in one workspace
- Hierarchical project representation
- Smart source browser
- Tool options configurable on global, group of source files, or individual source files level
- Flexible project building via batch build, pre/post-build or custom build with access to external tools
- Multi-file compilation
- Integration with Subversion and other source code control systems
- Device support with ready-made header files, device description files and linker command files

## HIGHLY OPTIMIZING C/C++ COMPILER

- Support for C and C++
- Renesas RX ABI Compliant
- C99 Compliant
- Automatic checking of MISRA C rules (MISRA C:1998 and MISRA C:2004)
- Support for all RX devices
- Full support for RX FPU
- 32- and 64-bit floating-point types in standard IEEE format
- Language extensions for embedded applications with target-specific support,
  - Extended keywords for data/functions defining and declaring with memory/type attributers
  - Pragma directives for controlling compiler's behavior, such as how it allocates memory

- Intrinsic functions for direct access in C source to low-level processor operations
- Multiple levels of optimizations on code size and execution speed allowing different transformations enabled, such as function inlining, loop unrolling etc.
- Advanced global and target-specific optimizer generating the most compact and stable code
- Position-independent code and data

STATE-OF-THE-ART C-SPY® DEBUGGER

- Advanced performance analyzer
- Complex code and data breakpoints
- Very fine granularity execution control (function call-level stepping)
- Stack window to monitor the memory consumption and integrity of the stack
- Complete support for stack unwinding even at high optimization levels
- Profiling and code coverage performance analysis tools
- Trace support for E1 and E20
  - Performance counters
  - Hot plugin allows connection to running system
  - Flash writing mode
- Trace support for simulator
- Complex trace triggers
- Versatile monitoring of registers, structures, call chain, locals, global variables and peripheral registers
- Smart STL container display in Watch window
- Symbolic memory window and static watch window
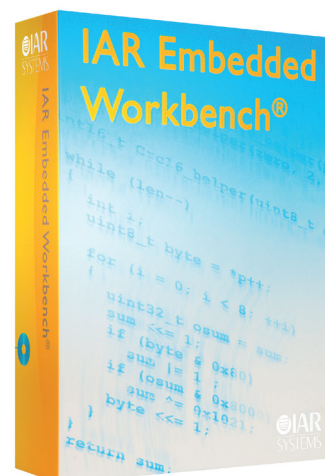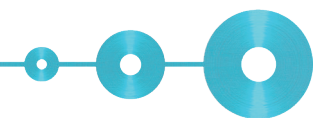
- RTOS-aware debugging
  - built-in plugin for OSEK Run Time Interface (ORTI)
  - RTOS context-sensitive help
- Interrupt and peripheral simulation

TIMELINE
- Common timeline for visualizing interrupt activity and call stack
- Displays power consumption data from power debugging

POWER DEBUGGING
- Integrated monitoring of power consumption correlated to source code
- Power profiling on function level
- Power breakpoints and filtering
- Allows power consumption analysis and tuning
- Enabled by IAR J-Link debug probes

C-SPY TARGET SYSTEM SUPPORT
- Simulator
- Renesas E1 Emulator
- Renesas E20 Emulator
- IAR J-Link
- IAR J-Link Ultra

IAR ASSEMBLER
- A powerful relocating macro assembler with a versatile set of directives and operators
- Built-in C language preprocessor, accepting all C macro definitions

IAR ILINK LINKER
- Complete linking, relocation and format generation to produce FLASH/PROMable code
- Flexible segment commands allowing detailed control of code and data placement, including unused virtual functions
- Optimized linking removing unused code and data
- Automatic selection of smallest printf/scanf formatter
- Direct linking of raw binary images, for instance multimedia files
- Optional code checksum generation for runtime checking
- Comprehensive cross-reference and dependency memory maps
- Support for over 30 industry-standard output formats, compatible with most popular debuggers and emulators

IAR LIBRARY AND LIBRARY TOOLS
- All required ISO/ANSI C and C++ libraries included
- All low-level routines such as writechar and readchar provided in full source code
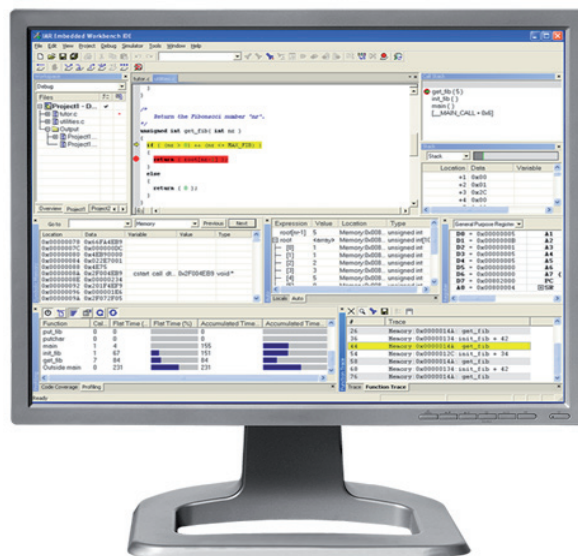
- Lightweight runtime library, user-configurable to match the needs of the application; full source included
- Library tools for creating and maintaining library projects, libraries and library modules
- Listings of entry points and symbolic information

INFORMATION CENTER
Web based navigation system that gives easy access to tutorials, product documentation, and example projects.

COMPREHENSIVE DOCUMENTATION
- PDF user guides with detailed usage and reference information
- Efficient coding hints for embedded application
- Extensive step-by-step tutorials
- Context sensitive help and hypertext versions of the user documentation available online

FREE EVALUATION SOFTWARE
Free 30-day evaluation version and 32K Kickstart edition available at www.iar.com/ewrx

For the latest product news, up-to-date device support list, hardware debugger support and etc, please visit www.iar.com/ewrx

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Design, validate, test and verify the control logic of your application in IAR visualSTATE.

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