IAR Embedded Workbench® for the Renesas M32C micro-controllers

IAR Embedded Workbench® is a set of highly sophisticated and easy-to-use development tools for programming embedded applications. It integrates the IAR C/C++ compiler, assembler, linker, librarian, text editor, project manager, and C-SPY® debugger in one 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 M32C microcontroller. 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 under Windows 98SE/ME/NT4/2000/XP
- Powerful project management allowing multiple projects in one workspace
- Hierarchical project representation
- Dockable and floating windows management
- Smart source browser
- Feature-rich editor with multi-byte support
- 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 in the build process
- Integration with source code control systems
- Extensive device support with ready-made header files, device description files and linker command files
- Ready-made project examples for various evaluation boards

HIGHLY OPTIMIZING C/C++ COMPILER

- Support for C, EC++ and extended EC++ including templates, namespace, standard template library (STL) etc.
- MISRA C checker
- Support for all devices in M16C/80 and M32Cseries
- 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
- 32- and 64-bit floating-point types in standard IEEE format
- 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

STATE-OF-THE-ART C-SPY® DEBUGGER

- 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 utility with expressions to examine execution history
- Versatile monitoring of registers, structures, call chain, locals, global variables and peripheral registers
- Smart STL container display in Watch window
- I/O and interrupt simulation
- True editing-while-debugging
- Drag and drop model
- RTOS-aware debugging with built-in plugins
  - OSEK Run Time Interface (ORTI)
  - Enea OSE Epsilon
  - Segger embOS

IAR SYSTEMS
From Idea to Target®

www.iar.com

Different Architectures. One Solution

C-SPY TARGET SYSTEM SUPPORT

- Simulator
- Renesas PC7501 emulator
- Renesas E8 on-chip debug (OCD)
- Renesas ROM-monitor used various evaluation boards
  - via RS232 or USB connection
  - via Renesas USB Flash Writer M3A-0665 (USB Monitor board)
- Other HW debugger support via compatible output format:
  - Renesas Compact Emulator
  - Renesas PC4701 Emulator
  - Ashling Microsystems PathFinder
  - Sophia Systems HyperSTAC for M32C etc.

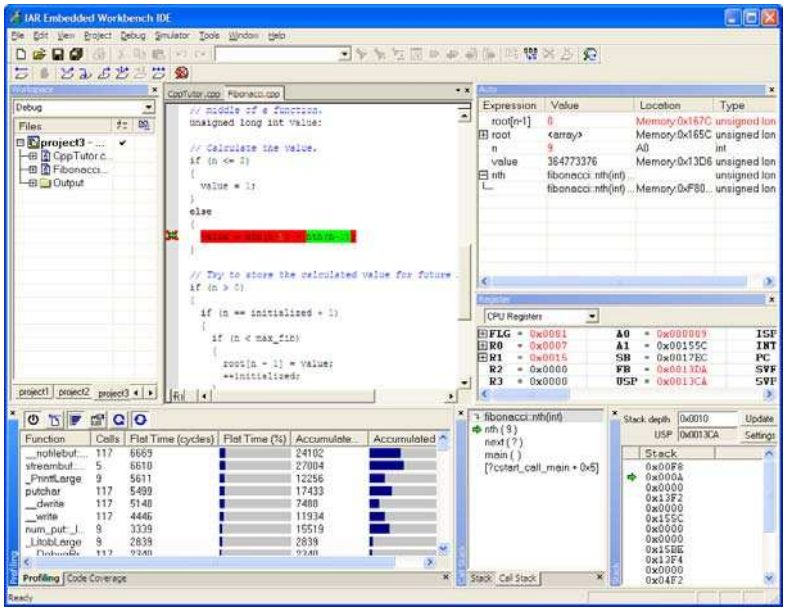
For more details, see www.iar.com/ewm32c

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 XLINK LINKER

- Complete linking, relocation and format generation to produce FLASH/PROMable code
- Flexible segment commands allowing detailed control of code and data placement
- Optimized linking removing unused code and data
- 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

COMPREHENSIVE DOCUMENTATION

- Perfect-bound user guides with detailed 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 16K Kickstart version available at http://www.iar.com/ewm32c.

visualSTATE®

visualSTATE is a suite of graphical design automation tools for embedded systems.

- Design an embedded application by drawing objects, events, actions etc in a flowchart-like manner
- Perform extensive tests before committing to hardware: validation of the application behavior, regression testing, verification of the run-time model and simulation on-chip
- Automatically generate micro-tight C/C++ code that is 100% consistent with your design as well as complete design documentation.

Together with IAR Embedded Workbench, visualSTATE forms a complete set of development tools for the M32C, supporting you through the entire development process — **From Idea to Target®**

http://www.iar.com

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