IAR Embedded Workbench® for AVR®

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 AVR microcontroller. In addition to this solid technology, IAR Systems also provides professional worldwide technical support.

MODULAR AND EXTENSIBLE IDE

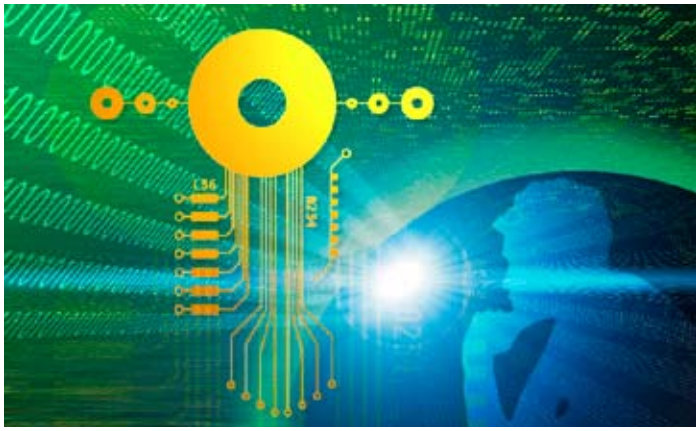
- A seamlessly integrated environment for building and debugging embedded applications.
- Powerful project management allowing multiple projects in one workspace
- Hierarchical project representation
- Dockable and floating windows management
- Smart source browser
- Feature-rich editor with code templates and 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
- Integration with source code control systems
- Extensive device support with ready-made header files, device description files and linker command files
- Ready-made code and project examples for various AVR evaluation boards

HIGHLY OPTIMIZING C/C++ COMPILER

- Support for C and C++
- Automatic checking of MISRA C rules (MISRA C:1998 and MISRA C:2004)
- Support for all devices in AVR families, such as megaAVR, XMEGA™ AVR, tinyAVR, CAN AVR, LCD AVR, USB AVR, Lighting AVR, Smart Battery AVR, FPSLIC and etc
- Fuse and lock bits programming
- 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 lowlevel processor operations
- Full support for memory attributes in C++
- Efficient interrupt handling directly in C/C++
- 32- and 64-bit IEEE-compatible floating-point arithmetic
- 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 simulation 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
- Symbolic memory window and static watch window
- I/O and interrupt simulation
- True editing-while-debugging
- Drag and drop model
- RTOS-aware debugging with built-in plugins for



IAR SYSTEMS

- OSEK Run Time Interface (ORTI)
- Micrium µC/OS-II

and plug-in from partners:

- Segger embOS
- CMX-RTX and CMX-Tiny+
- Pumpkin Salvo
- FreeRTOS

HARDWARE DEBUGGER SUPPORT

- AVR ICE200
- AVR JTAGICE
- AVR JTAGICE mkll
- AVR Dragon
- AVR Crypto Controller ROM-monitor for the Atmel Smart Card Development Board (SCDB) and the Voyager development system (optional add-ons, order separately)
- AVR Studio via compatible output format (fully support Atmel ICE via the Atmel debugger interface)

IAR ASSEMBLER

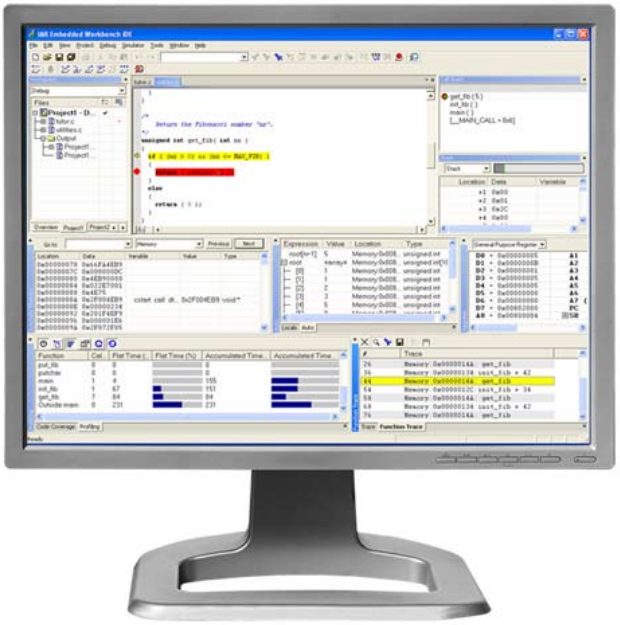
- A powerful relocating macro assembler with a versatile set of directives and operators
- Built-in C language preprocessor, accepting all C macro definitions

IAR XLINK LINKER

- Complete linking, relocation and format generation to produce FLASH/PROMable code
- Flexible segment commands allowing detailed control of code and data placment
- 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 the application; full source included



- 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

COMPREHENSIVEDOCUMENTATION

- 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 evaluation softwares—4KB KickStart and 30-day evaluation versions are available at http://www.iar.com/ewavr.

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

IAR visualSTATE®

IAR 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, IAR visualSTATE forms a complete set of development tools for the the AVR microcontrollers, supporting you through the entire development process.
From Idea to Target®

www.iar.com

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