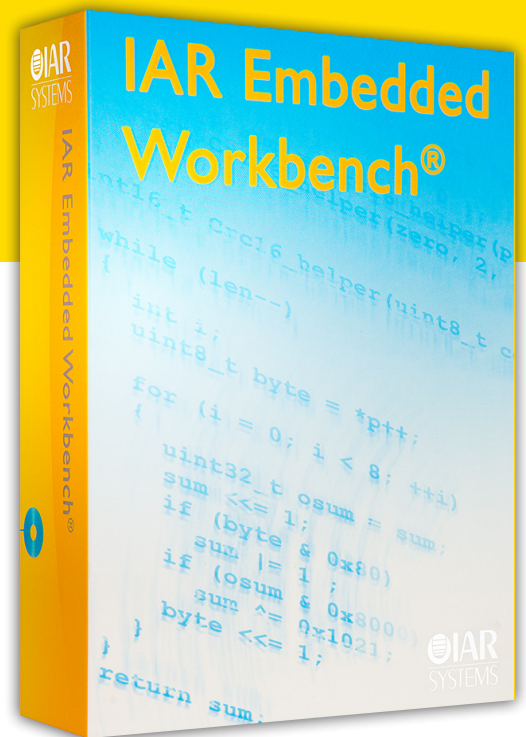


# IAR EMBEDDED WORKBENCH®

## for ARM



*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 ARM-specific code optimizer, IAR Embedded Workbench generates very efficient and reliable code for ARM devices. 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
- Dockable and floating windows management
- User-friendly text editor with features like auto completion, parameter hint, code folding, block select, block indent, bracket matching, zoom and word/paragraph navigation
- Smart source browser
- 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 Subversion and other source code control systems
- Project connection to external code generation tools
- Build integration with IAR visualSTATE

### Extensive device support

- Core support for ARM Cortex-M0, Cortex-M0+, Cortex-M1, Cortex-M3, Cortex-M4(F), Cortex-R4(F), Cortex-R5, Cortex-R7, Cortex-A5, Cortex-A7, Cortex-A8, Cortex-A9, Cortex-A15, ARM7(E), ARM9(E), ARM11, SecurCore
- Device support including peripheral register definitions and flashloaders for over 2000 devices from Analog Devices, Atmel, Energy Micro, Freescale, Fujitsu, SiLabs, Infineon, Nuvoton, NXP, ON Semi, Samsung, ST, Texas Instruments, Toshiba etc.
- Over 3400 example projects for various evaluation boards

### Highly optimizing C/C++ compiler

- Advanced global and target-specific optimizations generating stable code that is the fastest and most compact in the industry
- Multiple level of optimizations on code size and execution speed allowing different transformations, such as function inlining, loop unrolling etc.
- Multi-file compilation support for even better code optimization
- Support for C, Embedded C++ and C++
- Compliant with ARM Embedded Application Binary Interface (EABI) and ARM Cortex Microcontroller Software Interface Standard (CMSIS)

- compliant, with support for CMSIS SVD files
- Automatic checking of MISRA C rules (MISRA C:2004)
- Language extensions for embedded applications with core-specific support
- Advanced inline assembler
- Support for ARM, Thumb1 and Thumb-2 processor modes
- Support for VFP floating-point co-processors
- NEON intrinsic support
- Support for 64-bit long long
- 32- and 64-bit floating-point types in standard IEEE format
- Reentrant code
- Position Independent Code and Data (PIC/PID)

### State-of-the-art C-SPY® Debugger

- Complex code and data breakpoints
- Runtime stack analysis—stack window to monitor the memory consumption and integrity of the stack
- Call stack visualization
- Variable plotting
- Graphical ITM-based event logging
- Interrupt visualization
- Complete support for stack unwinding even at high optimization levels
- Profiling and code coverage performance analysis tools
- Smart STL container display in Watch window
- I/O and interrupt simulation
- Debugging of several independently built images during one debug session
- Compliant with CMSIS-SVD register definition files

### Power debugging

- Integrated monitoring of power consumption correlated to the source code
- Power profiling on function level
- Power consumption graph in Timeline window
- Power breakpoints
- Filtering based on power threshold

## C-SPY target system support

- Simulator
- JTAG/SWD
  - I-jet
  - JTAGjet
  - J-Link
  - RDI (Remote Debug Interface) based
  - GDB Server
  - P&E Micro JTAG Probes: Multilink, Cyclone and OS JTAG
  - Stellaris ICDI/FTDI
  - Macraigor JTAG interfaces: Macraigor mpDemon, usbDemon, usb2Demon and usb2Sprite
  - ST ST-LINK JTAG and ST-LINK V2 debug probes
  - TI XDS100
- ETB/ETM
  - JTAGjet-Trace
  - J-Trace

## RTOS and middleware support

Built-in plugins:

- AVIX-RT
- CMX-RTX/Tiny+
- Micrium  $\mu$ C/OS-II
- Quadros RTX
- OSEK (ORTI)
- Segger embOS
- Express Logic ThreadX
- Freescale MQX
- FreeRTOS/OPENRTOS
- HCC Embedded

Vendor plugins:

- eSys Tech X Realtime kernel
- NORTI MiSP0
- Micro Digital SMX
- Unicoi Fusion
- eForce MC3
- Fujitsu  $\mu$ T-REALOS

## IAR ILINK Linker

- Complete linking, relocation and format generation to produce FLASH/PROMable code
- Flexible commands allowing detailed control of code and data placement
- Optimized linking removing unused code and data
- Worst case stack usage analysis with support for indirect calls, recursion and overflow diagnostics messages
- Direct linking of raw binary images, for instance multimedia files

- Comprehensive cross-reference and dependency memory maps
- Automatic selection of smallest printf/scanf formatter

## IAR Library and library tools

- All required ISO/ANSI C and C++ libraries and source included
- All low-level routines such as writechar and readchar provided in full source code
- Libraries are thread-safe for multi-threaded applications
- Lightweight runtime library, user-configurable to match the needs of the application; full source included
- CMSIS DSP Library
- Library tools for creating and maintaining library projects, libraries, and library modules
- Listings of entry points and symbolic information

## 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

## Information center

- Web based navigation system that gives easy access to tutorials, product documentation, and example projects
- Efficient coding hints for embedded application
- Extensive step-by-step tutorials
- Context sensitive help and hypertext versions of the user documentation
- Comprehensive documentation

## Free evaluation software

Free 30-day time-limited or 32KB size-limited evaluation versions are available at [www.iar.com/ewarm](http://www.iar.com/ewarm)

