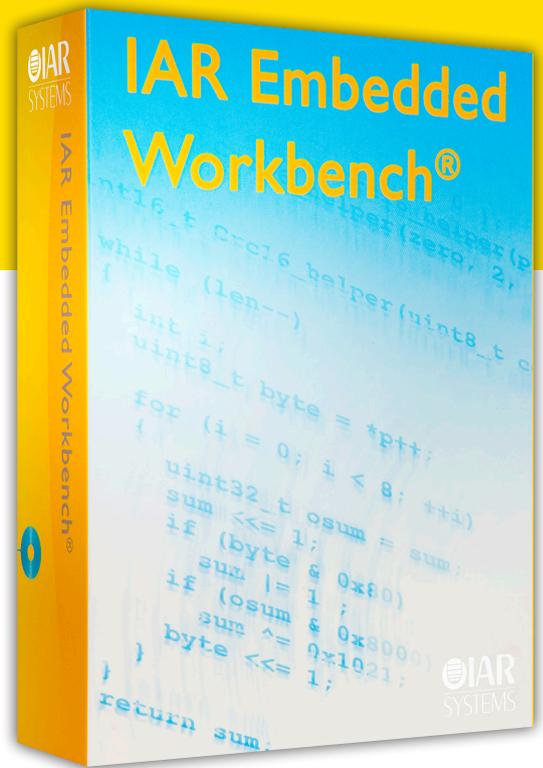


IAR EMBEDDED WORKBENCH®

8051

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 efficient and reliable FLASHable code for Atmel targets. 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
- Build integration with IAR visualSTATE
- 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
- Multi-file compilation support
- 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 code and project examples for various 8051 evaluation boards

Highly optimizing C/C++ compiler

- Support for C and C++
- C99 compliance
- Automatic checking of MISRA C rules (MISRA C:1998 and MISRA C:2004)
- Full support for most classic and extended 8051 architectures
- 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
- Support for the hardware multiplier peripheral module via dedicated runtime library modules.
- User control of register usage for optimat performance
- Support for DATA, IDATA, XDATA, PDATA and BDATA
- Support for multiple DPTR in compiler and libraries
- Bitwise addressing for SFRs
- Possibility to use up to 32 virtual registers
- Full support for memory attributes in C++
- Efficient interrupt handling directly in C/C++
- 32-bit IEEE-compatible floating-point arithmetic
- Mixed C/C++ and assembler listings
- Support for inline assembler
- Highly optimized reentrant code models making the project portable between different targets
- 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
- Timeline window in the simulator allows graphically correlated visualization of the call stack, and the interrupt log, plotted against time
- RTOS-aware debugging with built-in plugins for OSEK Run Time Interface (ORTI)
- Extensive target system support
 - Signum Systems USP-51/USP51A ICE and ADM-51 ICD supported via the Chameleon debug environment.
 - Configurable IAR ROM-monitor for the NXP LPC935/LPC93xx and TI MSC1211 devices
 - Analog Devices ROM-monitor for ADu83x/ADu84x, ADE51xx/ADE55xx and ADE71xx/ADE75xx devices
 - Analog Devices USB EA-Emulator
 - Texas Instruments USB/JTAG interface for 8051 based CC11xx, CC24xx and CC25xx SoC:s
 - Infineon Debug Access Server (DAS) for the Infineon XC8xx device family
 - Silicon Laboratories USB and serial (EC2) JTAG adapters supporting all C8051Fxxx devices
 - MIPS System Navigator Probe for 8051 Microcontroller Cores
 - Nordic Semiconductor nRF GO development platform (nRF-Probe)
 - Third party plugins: DoCD HAD Probe, Phyton JEM52, Phyton PICE52, Manley Electronics ME52HU and N-Link emulators, FlashPro-CC and GangPro-CC USB flash programming adapters

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 evaluation softwares—4KB KickStart and 30-day evaluation versions are available at www.iar.com/ew8051

For the latest product news, up-to-date device support list, and hardware debugger support, please visit www.iar.com/ew8051