

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 chip-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
- Build integration with IAR visualSTATE
- Hierarchical project representation
- Dockable and floating windows management
- Smart source browser
- Tool options configurable on global, group of source files, or individual source files level
- Multi-file compilation support for even better code optimization
- 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

EXTENSIVE DEVICE SUPPORT

- Core support for ARM7, ARM7E, ARM9, ARM9E, ARM10E, ARM11, SecurCore, Intel® XScale, Cortex-M0, Cortex-M1, Cortex-M3, Cortex-M4, Cortex-R4(F), Cortex-A5, Cortex-A8 and Cortex-A9
- Ready-made peripheral register definition files and flash loaders for most devices and evaluation boards
- Over 2700 example projects for evaluation boards from IAR Systems, Actel, Analog Devices, Aiji Systems, ARM, Atmel, Cirrus Logic, Energy Micro, Freescale, Fujitsu, OKI, NXP, Samsung, ST, Texas Instruments, Toshiba etc.

HIGHLY OPTIMIZING C/C++ COMPILER

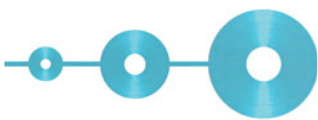
- Support for C, Embedded C++ and C++
- ARM Embedded Application Binary Interface (EABI) and ARM Cortex Microcontroller Software Interface Standard (CMSIS) compliant, with support for CMSIS SVD files

- Binary compatibility with other EABI compliant tools
- Automatic checking of MISRA C rules (MISRA C:2004)
- Language extensions for embedded applications with target-specific support
- Advanced inline assembler
- Support for ARM, Thumb1 and Thumb-2 processor modes
- Support for the VFP9-S floating-point co-processor
- Support for 4 Gbyte applications in all processor modes
- 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)
- Multiple levels of optimizations on code size and execution speed allowing different transformations enabled, such as function inlining, loop unrolling etc.

STATE-OF-THE-ART C-SPY® DEBUGGER

- Complex code and data breakpoints
- User selectable breakpoint types (hardware/software)
- Unlimited number of breakpoints in flash via optional license for J-Link
- 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 several independently built images during one debug session





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 DEBUGGER TARGET SYSTEM SUPPORT

The C-SPY Debugger for the ARM core is available with drivers for the following target systems:

- Simulator
- ETM
 - IAR J-Trace
- JTAG/SWD
 - IAR J-Link probe, JTAG and SWD support, connection via USB or TCP/IP server
 - JTAGjet
 - RDI (Remote Debug Interface), such as Abatron BDI1000 & BDI2000, EPI Majic, Ashling Opella, Aiji OpenICE, ARM Multi-ICE
 - 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

RTOS SUPPORT

Built-in plugins:

- AVIX-RT
- CMX-RTX/Tiny+
- Micrium μ C/OS-II
- OSE Epsilon
- OSEK (ORTI)
- Segger embOS
- Express Logic ThreadX
- Freescale MQX
- FreeRTOS/OPENRTOS

Vendor plugins:

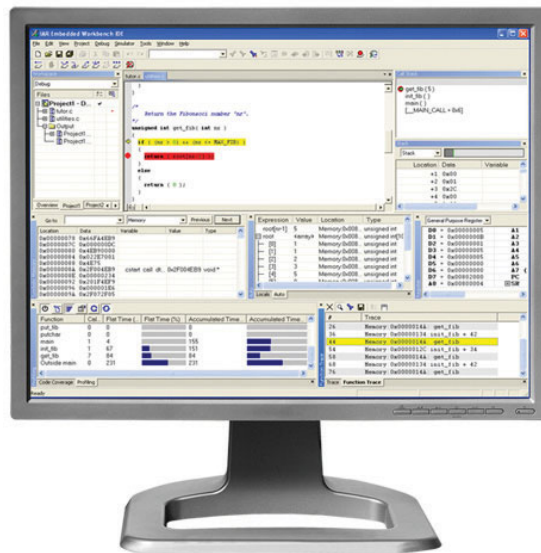
- eSys Tech X Realtime kernel
- NORTi MiSPO
- Micro Digital SMX
- Quadros RTXC
- Unicoi Fusion

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 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
- Stack analysis reports maximum stack usage
- Comprehensive cross-reference and dependency memory maps
- Link compatibility with object files and libraries generated by other EABI compliant tools
- 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

COMPREHENSIVE DOCUMENTATION

- Efficient coding hints for embedded application
- Extensive step-by-step tutorials
- Context sensitive help and hypertext versions of the user documentation available online

INFORMATION CENTER

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

FREE EVALUATION SOFTWARE

Free evaluation softwares—32KB KickStart and 30-day evaluation versions are available at <http://www.iar.com/ewarm>

www.iar.com

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