Welcome to IAR Systems!
We are dedicated to provide superior technology and services, enabling our customers to create the products of today and the innovations of tomorrow.
Future-proof software tools and services for embedded development

- Dedicated team of support, sales and service worldwide
- 46,000 customers
- 32% of revenue invested in R&D

35 years in the industry
Listed on NASDAQ Stockholm

2017
- Sales SEK 345M
- Operating profit SEK 107M
- Net cash SEK 117M

Dedicated team of support, sales and service worldwide
- 46,000 customers
- 32% of revenue invested in R&D

35 years in the industry
Listed on NASDAQ Stockholm

Uppsala
Munich
Paris
Tokyo
Seoul

Shanghai
Dallas
Boston
Los Angeles
San Francisco

+ Distributor representation in 40+ countries
Global organization

America
4 offices

Asia
3 offices

Europe
4 offices
Strong financial position

Net sales, SEK m

Operating result, SEK m

Cash flow from operations, SEK m

Revenue split

- US
- APAC
- EMEA

IAR Systems share

- Number of shares traded in 1,000s
- IAR Systems Group B
- OMX Stockholm_PI

IAR Systems Group B

OMX Stockholm_PI

IAR Systems share
Market and customers
Large and loyal customer base worldwide

1 million customer products

150,000 technology users

95% recurring customers
High-growth verticals markets

**IoT**
- Growing security demands and concerns among customers
- Software tools must evolve to encompass security across the entire workflow

**Automotive**
- Need for quality guaranteed
- Requirements for safety solutions
- Demand for more efficient development workflows

**Medical**
- Personal integrity must be secured
- Functional safety critical
- Big data management for extended patient monitoring
Where the market is moving
We’re part of all of it

- Amazon FreeRTOS
  Securely connect devices to the AWS cloud. Enhanced plugin within IAR Embedded Workbench for Arm.
- Joining the RISC-V Foundation
- Support for Arm CMSIS-NN
  Optimizing machine learning on the smallest IoT edge devices.
IoT is everywhere!

Virtually all industries have devices or products that can be further utilized through improved communication and connectivity.

27 billions of connected devices in 2025

Connected cars
Smart road infrastructure
Industrial IoT
Healthcare IoT
Wearables
Smart cities
Joining forces to deliver on a vision of simple and scalable IoT security, from Development to Deployment, and ensuring workflows where security is included from start.
By making security simple and scalable, companies can ensure that their intellectual property is completely protected against treats like overproduction and counterfeiting, and loss of data or code.

Stefan Skarin, CEO, IAR Systems
Products and services
The world’s most widely used development tools for embedded applications

Be free! Build what you want in the platform of your choice.

IAR Embedded Workbench

150,000
Users worldwide

12,000+
Supported devices

35
Years of experience
Unique line-up of complete development tools
One toolbox, one view, one uninterrupted workflow

- Complete C/C++ compiler and debugger toolchain
- Integrated code analysis tools
- The widest device support
- Best code optimizations proven in benchmarks
- Certified for functional safety development according to IEC 61508, ISO 26262, EN 50128, IEC 62304
- Extensive global support services and training
IAR Embedded Workbench
Complete C/C++ compiler and debugger toolchain

Outstanding performance through sophisticated optimization technology

Comprehensive debugger

User-friendly features and broad ecosystem integration

ISO/ANSI C/C++ compliance with support for C11 and C++14
Solutions for safety-critical applications

Certified toolchain
- A special functional safety edition of IAR Embedded Workbench

Simplified validation
- Functional Safety certificate from TÜV SÜD
- Safety report from TÜV SÜD
- Safety guide

Guaranteed support through the product life cycle
- Prioritized support
- Validated service packs
- Regular reports of known problems

Validated according to:
- IEC 61508
- ISO 26262
- EN 50128
- IEC 62304

Available for Arm, Renesas RX, Renesas RL78, Renesas RH850
Support for 12,000+ devices
40+ architectures

All available 8-, 16- and 32-bit MCUs

<table>
<thead>
<tr>
<th>Cortex-M0</th>
<th>Cortex-R8</th>
<th>AVR</th>
<th>R8C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cortex-M0+</td>
<td>Cortex-A5</td>
<td>AVR32</td>
<td>H8</td>
</tr>
<tr>
<td>Cortex-M1</td>
<td>Cortex-A7</td>
<td>RX</td>
<td>STM8</td>
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<td>Cortex-M3</td>
<td>Cortex-A8</td>
<td>RL78</td>
<td>ColdFire</td>
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<tr>
<td>Cortex-M4</td>
<td>Cortex-A9</td>
<td>RH850</td>
<td>HCS12</td>
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<td>Cortex-A15</td>
<td>78K</td>
<td>S08</td>
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<td>ARM11</td>
<td>SuperH</td>
<td>MAXQ</td>
</tr>
<tr>
<td>Cortex-M33</td>
<td>ARM9</td>
<td>V850</td>
<td>CR16C</td>
</tr>
<tr>
<td>Cortex-R4</td>
<td>ARM7</td>
<td>R32C</td>
<td>SAM8</td>
</tr>
<tr>
<td>Cortex-R5</td>
<td>SecurCore</td>
<td>M32C</td>
<td></td>
</tr>
<tr>
<td>Cortex-R52</td>
<td>8051</td>
<td>M16C</td>
<td></td>
</tr>
<tr>
<td>Cortex-R7</td>
<td>MSP430</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Complete offering for Arm

Cortex-M33 Cortex-M23 Cortex-M7 Cortex-M4 Cortex-M3 Cortex-M1 Cortex-M0(+)
Cortex-R8 Cortex-R7 Cortex-R5 Cortex-R4 Cortex-A15 Cortex-A9 Cortex-A8
Cortex-A7 Cortex-A5 ARM11 ARM9 ARM7 SecurCore

- Support for all available Arm cores, from all major vendors incl. ST, TI, Renesas, NXP, Cypress, Microchip, etc.
- 8,400+ example projects to enable quick start
- 5,000+ supported devices
- Close cooperation with several SoC vendors

Take control of your development
C-STAT:
Powerful static code analysis
C-RUN:
Runtime execution analysis
I-jet and I-jet Trace: Debugging and trace probes
IAR Embedded Workbench
We enable developers to take full control of their development and gain efficient, adaptable workflows delivering dependable products.
EWARM 8.x

- C11 and C++17
- Updated IDE look
- Smart Trace Navigation
- CMSIS-Pack support
- Stack protection
- Fault exception viewer
Quick start

Thousands of example projects

Getting started guides and tutorials

Templates and quick access to RTOS integration

Direct links to technical support, release notes, and product updates through My Pages
User-friendly IDE

Smart Source Browser

Feature-rich editor

Multiple views and dockable windows

Powerful Project Manager
Arrange multiple projects in one workspace

Integrates with version control systems

Set breakpoints while editing the code, before starting the debugger

Comprehensive documentation

Context-sensitive online help with library function lookup

IAR Embedded Workbench USER GUIDES

IDE Project Management and Building Guide
C/C++ Development Guide
Assembler Reference Guide
M320/C6486 Reference Guide (ARM C-STAT)
Powerful C/C++ compiler

- The linker can remove unused code.
- Option to maximize speed with no size constraints.
- Multi-file compilation allows the optimizer to operate on a larger set of code.
- Major functions of the optimizer can be controlled individually.
- Balance between size and speed by setting different optimizations for different parts of the code.

Language standards:
- ISO/IEC 14882:2015 (C++14)
- ISO/IEC 9899:2012 (C11)
- ANSI X3.159-1989 (C89)
- IEEE 754 standard for floating-point arithmetic

Well-tested:
- Plum-Hall Validation test suite
- Perennial EC++VS
- Dinkum C++ Proofer

In-house developed test suite:
- >500,000 lines of C/C++ test code run multiple times
- Processor modes
- Memory models
- Optimization levels

Multiple levels of optimizations for code size and execution speed.
Comprehensive debugger

Integrated debugger for source and disassembly debugging
Edit source files without leaving the debug session
C-like macro system to extend debugger capabilities

Timeline window
RTOS awareness
Direct flash erase and download

Power visualization
Built-in simulator driver
Trace support
Performance analysis

Broad range of supported in-circuit debugging probes
Integrated profiling tools

Function profiling
- Based on simulator, sampled trace or full trace
- Execution time per function
- Select time interval

Timeline window shows the application’s profile
Interrupt log, Data log, Event log, Call stack

Code coverage analysis
Which code has been executed?

Stack analysis
calculates maximum stack usage, helps find the optimal stack size, and checks stack integrity at runtime to detect overflow
C-STAT static analysis

Complete static analysis tool fully integrated in IAR Embedded Workbench

Intuitive and easy-to-use settings with flexible rule selection

Extensive and detailed documentation

Checks compliance with MISRA C:2004, MISRA C++:2008 and MISRA C:2012

Includes ~350 checks mapping to hundreds of issues covered by CWE and CERT C/C++
C-STAT Static Analysis

• **C-STAT** is a static analysis tool developed by IAR Systems
  – Launched in Feb, 2015

• **C-STAT** is an add-on product of IAR Embedded Workbench
  – Fully integrated
  – No additional installation
  – No separate license
  – Cannot work with 3rd-party compiler & debugger tools

• Target support
  – IAR Embedded Workbench for ARM, from version 7.40
  – IAR Embedded Workbench for MSP430, from version 6.30
  – IAR Embedded Workbench for AVR32, from version 4.30
  – IAR Embedded Workbench for AVR, from version 6.60
  – IAR Embedded Workbench for RX, from version 2.80
  – IAR Embedded Workbench for V850, from version 4.20
  – IAR Embedded Workbench for CR16C, from version 3.30
  – IAR Embedded Workbench for STM8, from version 2.20
  – IAR Embedded Workbench for 8051, from version 9.30
  – IAR Embedded Workbench for RL78, from version 2.20
  – IAR Embedded Workbench for RH850, from version 1.30
C-STAT Static Analysis
# C-STAT Static Analysis

## Messages

<table>
<thead>
<tr>
<th>Message</th>
<th>Check</th>
<th>Severity</th>
<th>File</th>
<th>Line</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutor.c (8 messages)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implicit conversion of <code>my_uint32</code> from essential type unsigned 32-bit int to different essential type</td>
<td>MISRAC2012-Rule-10.3</td>
<td>Medium</td>
<td>Tutor.c</td>
<td>64</td>
</tr>
<tr>
<td>Variable <code>my_uint32</code> is uninitialized</td>
<td>SPC-uninit-var-all</td>
<td>High</td>
<td>Tutor.c</td>
<td>64</td>
</tr>
<tr>
<td>Suggest parentheses around <code>32</code> for clarity</td>
<td>MISRAC2012-Rule-9.1.e</td>
<td>High</td>
<td>Tutor.c</td>
<td>64</td>
</tr>
<tr>
<td>The operands <code>1</code> and <code>10</code> have essential type categories unsigned 32-bit int</td>
<td>MISRAC2012-Rule-10.4</td>
<td>Medium</td>
<td>Tutor.c</td>
<td>70</td>
</tr>
<tr>
<td>Possible division by 0. Divisor has potential range [0,9]</td>
<td>MISRAC2012-Rule-1.3.f</td>
<td>High</td>
<td>Tutor.c</td>
<td>82</td>
</tr>
<tr>
<td>Utilities.c (10 messages)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C-RUN runtime analysis
C-RUN runtime analysis

Complete runtime analysis tool fully integrated in IAR Embedded Workbench for ARM

- Bounds checking
- Arithmetic checking
- Heap and memory leaks checking

Intuitive and easy-to-use settings with flexible rule selection

Code correlation and graphical feedback in editor

Comprehensive and detailed feedback

Very efficient instrumentation of compiled code
C-RUN runtime analysis

• **C-RUN** is a runtime analysis tool developed by IAR Systems
  – Launched in May, 2014

• **C-RUN** is an add-on product of IAR Embedded Workbench
  – Fully integrated
  – No additional installation
  – No separate license
  – Cannot work with 3rd-party compiler & debugger tools

• Target support
  – IAR Embedded Workbench for Arm, version 7.20 and forward
  – IAR Embedded Workbench for RX, version 3.10 and forward
  – 12KB code size limited C-RUN is available for evaluation within the 30-days EWARM free evaluation license
C-RUN runtime analysis

• Traditional runtime analysis tools:
  – Independent with compiler and debugger;
  – Different applications and license models;
  – Less knowledge about the target and optimization;
  – Insert test code at the source code level;
  – Large overhead in target memory and speed performance.

• C-RUN:
  – Created by compiler and debugger experts;
  – Fully integrated within IAR Embedded Workbench;
  – Insert target optimized test code directly during compilation;
  – Replace the C/C++ standard library with a dedicated library which contains special functionality for runtime error checking;
  – Result in minimized ROM/RAM overhead and speed penalty.
C-RUN runtime analysis

- Heap checking
- Arithmetic checking
- Bounds checking
C-RUN runtime analysis
Take full control of your development

Let C-RUN analyze your project
Let C-STAT analyze your code

Build and debug the application

Requirements  Design  Implementation  Verification  Maintenance
I-scope adds current and voltage measurement capabilities to I-jet and I-jet Trace.

**I-jet**

- Powerful, quick, and user-friendly
- Download speed of up to 1MB/sec
- Enables high-resolution measurements of target power consumption

Available in two versions, one supporting ARM Cortex-M only and one for ARM Cortex-A/R/M

Equipped with Embedded Trace Macrocell (ETM)

Large trace memory capacities

High-speed communication via SuperSpeed USB 3.0

**I-jet Trace**

Debugging and trace probes for ARM

- Available in two versions, one supporting ARM Cortex-M only and one for ARM Cortex-A/R/M
- Equipped with Embedded Trace Macrocell (ETM)
- Large trace memory capacities
- High-speed communication via SuperSpeed USB 3.0
Worldwide extensive support services

- Ensure code quality
- Ease your development workflow
- Meet your product roadmap goals

Get help from technical experts in your time zone. Support centers covering 9 languages in the US, Japan, China, Korea, Germany and Sweden.

Don’t worry about fighting with learning curves, issues or bugs on your own. With support from us, you’re never alone.

Support according to your needs

Support and update service
- Access to the latest updates and features, worldwide technical support team, help desk, customer portal, and more.

Complete code control
- Code control throughout the entire development cycle with our add-on tools for static analysis and runtime analysis.

Volume license program
- Simplified license management, ensured flexibility, extended technical support and training to protect your investment.

Functional safety offering
- Certified tools for safety-related development, access to validated releases, priority support, and more.
INTERESTED IN BOOKING A COURSE?

We offer both standard course packages and on-demand customized courses tailored for specific requirements and needs.
Thank you for your attention!

For more information, visit iar.com