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Product Fact Sheet

EN 50128 real-time embedded safety critical DO-178B Ada

ObjectAda Real-Time RAVEN

Tools Support:

- Full IDE
- Efficient cross compiler
- High quality code generator
- Source-level target debugger
- Ethernet and serial download/debug facilities
- AdaNav–HTML source navigation and program analysis toolset
- AdaAssured source code standardization and pretty-printing toolset
- AdaCover coverage analysis tool for certification score

Real-Time Kernel Features:

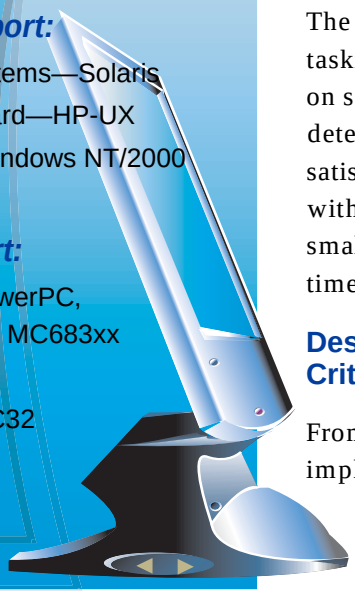
- Small size
- Fast execution
- Deterministic behavior
- Bounded memory usage
- Safety-Critical certifiability to the highest levels of criticality
- Ada 95 Protected Object support
- Interrupt support

Platform Support:

- Sun Microsystems—Solaris
- Hewlett Packard—HP-UX
- Microsoft—Windows NT/2000

Target Support:

- Motorola—PowerPC, MC680x0 and MC683xx
- Intel—32 Bit
- SPARC—ERC32



ObjectAda®: Bringing Safety to Hard Real-Time Applications

ObjectAda Real-Time RAVEN™ employs a small and very fast real-time kernel that is perfectly suited for hard real-time and safety-critical applications. It also provides the reliable, feature-rich toolset most critical system developers require to help them build an efficient, provable, verifiable and / or certifiable, deterministic real-time application.

Emerging Standards that Support Safe Applications

RAVEN's design is based on the Ada 95 tasking restrictions set named the RAVENSCAR Profile. Adopted at the Eight International Real-Time Ada Workshop (IRTAW-8), Ravenscar UK, it accommodates certification requirements for high-integrity (safety-critical) real-time systems.

The profile defines a special Ada 95 tasking model with special emphasis on small size, fast performance and deterministic behavior. RAVEN satisfies these goals, so you can use it with any real-time application where small runtime size and / or hard real-time performance is needed.

Designed to Address Safety-Critical Systems

From the start, the design and implementation of RAVEN is focused on deterministic behavior, which is a requirement for safety-critical systems. As a result, RAVEN satisfies the highest levels of criticality, even Level A as defined in the DO-178B software safety guidelines required by the FAA for airborne systems.

Flexibility

RAVEN provides several libraries that may be selected to suit the application. Programs requiring no concurrent operations may use the sequential (no tasking) execution library. A preemptive tasking library supports programs requiring concurrent threads of execution. And, for non-safety-critical applications, additional real-time primitives can be incrementally linked in from the extended runtime library.

Environments

Instant familiarity will be found with ObjectAda's highly acclaimed interfaces based on Visual C++. Team members will be effectively using ObjectAda's powerful, integrated environments soon after installation – and spend less time learning an unfamiliar interface.

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Making Ideas a Reality

ObjectAda Real-Time RAVEN

Reliability

Ada has long been the preferred choice for the most reliable systems for complex application development. ObjectAda Real-Time RAVEN extends Ada's capabilities with Protected Types and Protected Objects for implementing modern multitasking programs with minimal overhead.

ObjectAda RAVEN—Product Packages and Options

CorePack: appropriate for any hard real-time application where a small, fast kernel is needed. Includes:

- Fully Integrated Development Environment (IDE)
- Ada 95 cross compiler
- Browser
- Cross debugger
- Linker / downloader tools
- RAVEN real-time kernel
- Board support packages
- gnu C / C++ toolset and PowerPC target simulator

ProjectPack: appropriate when safety or high reliability is an issue. Includes:

- All CorePack features
- AdaNav—source navigation and program analysis toolset.
- Ada-ASSURED—enforces coding standards and provides syntax checking and coloring, auto or custom pretty printing, browsing, structural navigation and more.

Safety-Critical Pack: ideal for code and execution verification to assure system safety. Includes:

- All features of ProjectPack
- AdaCover—performs dynamic machine-code-level coverage analysis on program execution. It provides the evidence that all code has been covered by test and all conditions and decisions have been taken to show that no dead code remains in the application, satisfying the requirements for testing at the highest level of criticality, Level A. AdaCover output may be used as part of the submission of evidence required.

Certification Option: supplies customers with all of the life cycle data for the real-time kernel needed to meet the certification requirements of many standards like DO-178B for avionics, IEC 61508 for industrial and CENELEC EN 50128 for rail, just to name a few.

The Certification Option for DO-178B, for example, includes:

Other Support:

- Flexible toolset packaging for every level of development need
- BSP sources provided for user customization
- Real-time kernel sources available
- Certification materials for runtime environment
- Professional services available including certification expertise

- RAVEN kernel source code
- Runtime functional and coverage tests
- Results of the tests
- Analysis and certification documentation (as defined by DO-178B for Level A certification)

Professional Services and Support

Safety-critical and real-time experts with years of certification expertise are available to help with your certification challenges.

To obtain more information, please contact Aonix at **www.aonix.com** or your local Aonix office.

North America
Phone: (800) 97-AONIX
Fax: (858) 824-0212
E-mail: info@aonix.com

France
Phone: +33 (0) 1 4148-1000
Fax: +33 (0) 1 4148-1020
E-mail: info@aonix.fr

United Kingdom
Phone: +44 (0) 1491 415000
Fax: +44 (0) 1491 571866
E-mail: info@aonix.co.uk

Germany
Phone: +49 (0) 721 98653-0
Fax: +49 (0) 721 98653-98
E-mail: info@aonix.de

Sweden
Phone: +46 (0) 8 6 01 94 91
Fax: +46 (0) 8 6 01 94 99
E-mail: info@aonix.se