RTEMS™

Real-Time Executive for Multiprocessor Systems

http://www.rtems.com

RTEMS (http://www.rtems.com) is an Open Source RTOS providing a powerful development and run-time environment that promotes the production of efficient real-time embedded applications.

Features

- Scalable Architecture
- Homogeneous and heterogeneous multiprocessor systems
- Multiple APIs - "Classic", POSIX , ITRON
- Event-driven multitasking
- Responsive interrupt management
- Priority-based, preemptive scheduling
- Optional rate monotonic scheduling
- Priority inheritance/ceiling protocols
- Intertask communication and synchronization
- Reentrant ANSI C Library
- Add-on libraries including Python and Tcl
- Modified GPL License
- High Performance BSD TCP/IP Stack
  - Protocols: TCP, UDP, BOOTP, ARP, ICMP
  - Servers: FTPD, HTTPD, TELNETD
  - Clients: DHCP, NTP, DNS, TFTP

Processors Supported

ARM	ix86	M32C
AVR	Lattice Mico32	M32R
Blackfin	MC68xxx	SPARC
Coldfire	MC683xx	SPARC64
H8/300	CPU32	SuperH
PowerPC	MIPS	

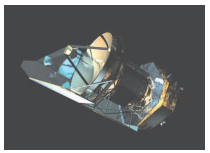
Standard and Legacy Support

- Direct Contact with the RTEMS Engineers
- Technical Assistance with the RTEMS Environment
- Bug Reporting and Patches
- Support Mail List Subscription
- CVS Read-Only Access
- Standard is 4.9, 4.10 and CVS head
- Legacy for older versions

RTEMS Application Assistance

As the original developer of RTEMS and its current maintainer, OAR has a unique level of experience and insight into RTEMS based applications. Coupled with our vast experience in developing hard core embedded applications, OAR can provide assistance to you as you design, implement, and debug your applications.

User Success Stories



ESA Herschel

ESA Long Wavelength Infrared Space Telescope

Digital Fault Recorder

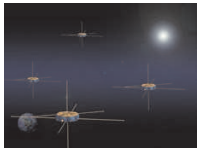
High/Medium Voltage Power Substation Fault Recorder

Framing Camera

Used on Venus Express and DAWN Missions

AMV Technics

High Precision Syringe Pump

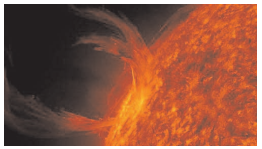


NASA MMS

Study Plasma Magnetic Reconnection, Energetic Particle Acceleration, & Turbulence Processes

Solar Dynamic Observatory

Geosynchronous Satellite to Study the Sun and Space Weather



FMVS FDDI Card

NATO AWACS Mission Data Recorder
Generals Dynamics Canada

Other Successful Users

NASA	JPL	Embedded Brains
ESA	BMW	Defence R&D Canada
MITRE	DLR	Active Power
Canon	Mectrno	Stanford Linear Accelator
SAABAB	Indumat	Argonne National Labs
INVAP	COM-DEV	Brookhaven National Labs
Javad	Tyco	Southwestern Research Institute
NEC	Invap	Danelec Limited
Nikon		Canadian Light Source

RTEMS UNIVERSITY

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RTEMS University

RTEMS University provides a comprehensive set of courses designed to prepare RTEMS developers to successfully develop embedded real-time applications using the RTEMS product suite. In addition, the RTEMS certification program allows developers to acquire certification in several RTEMS specialty areas.

RTEMS Class Topics

- √ Real-Time Systems Theoretical Foundation
- √ RTEMS Overview
- √ Classic API
- √ POSIX API
- √ Board Support Package (BSP) and Device Driver Development
- √ Development Environment Administration
- √ Network Programming
- √ Tuning
- √ Debugging RTEMS Applications
- √ Porting RTEMS to New Architectures

Location and Dates

Locations: Huntsville Alabama US and Munich Germany
Dates: http://rtems.org/wiki/index.php/RTEMS_Training

Embedded With RTEMS™
www.rtems.com

Mission Statement

The RTEMS Project strives to provide a free deterministic, real-time, operating system targeted towards deeply embedded systems which is competitive with closed source products. The RTEMS Project encourages the support and use of standard APIs in order to promote application portability and ease porting other packages to the RTEMS environment.

RTEMS uses an open development environment in which many users collaborate to improve RTEMS. The RTEMS cross development toolset is based upon the free GNU tools and the open source library newlib and allows RTEMS to support many host platforms and target architectures.

OAR
On-Line Applications Research Corporation

OAR Role

OAR Corporation was the original developer of RTEMS for the U.S. Army and has acted as its steward for nearly twenty years. OAR was instrumental in convincing the Army project sponsors to permit the first public releases of RTEMS. OAR has shepherded RTEMS from U.S. Army sponsorship to the community based open project it is today. OAR provides the hosting for the RTEMS Project and acts as a gate keeper on all submissions.

OAR recognizes the criticality of user applications and ensures the quality of RTEMS via automated regression testing. OAR recognizes that RTEMS applications often have a life span that far exceeds that of commercial alternatives. OAR strives to ensure that the best characteristics of the open source software model are leveraged to meet the requirements of highly customized, long lifespan, embedded systems.

Steering Committee

The RTEMS Steering Committee was founded in August 2001 with the intent of broadening the leadership of RTEMS from that of a benevolent autocracy. The formation of the Steering Committee formally reflected a standing OAR practice of asking key members of the RTEMS community for advice. Its primary purpose is to make major decisions in the best interests of the RTEMS Project and to ensure that the project adheres to its fundamental principles found in the project's mission statement.

Recognizing the global nature of the RTEMS user base, OAR has created an eXtended development team of RTEMS specialists from other parts of the world, the X Team, to assist in the development and maintenance of RTEMS above and beyond the traditional open source submissions. X Team members are chosen for their world class expertise in related embedded systems technologies and their ability to apply that knowledge to RTEMS.

RTEMS XTEAM

In addition, these X Team members are available to provide local applications development services in their respective geographic areas. Each X Team member has expertise in specific application domains which can be leveraged to provide RTEMS users with the knowledge required to produce world-class real-time embedded applications that meet the most stringent requirements.

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