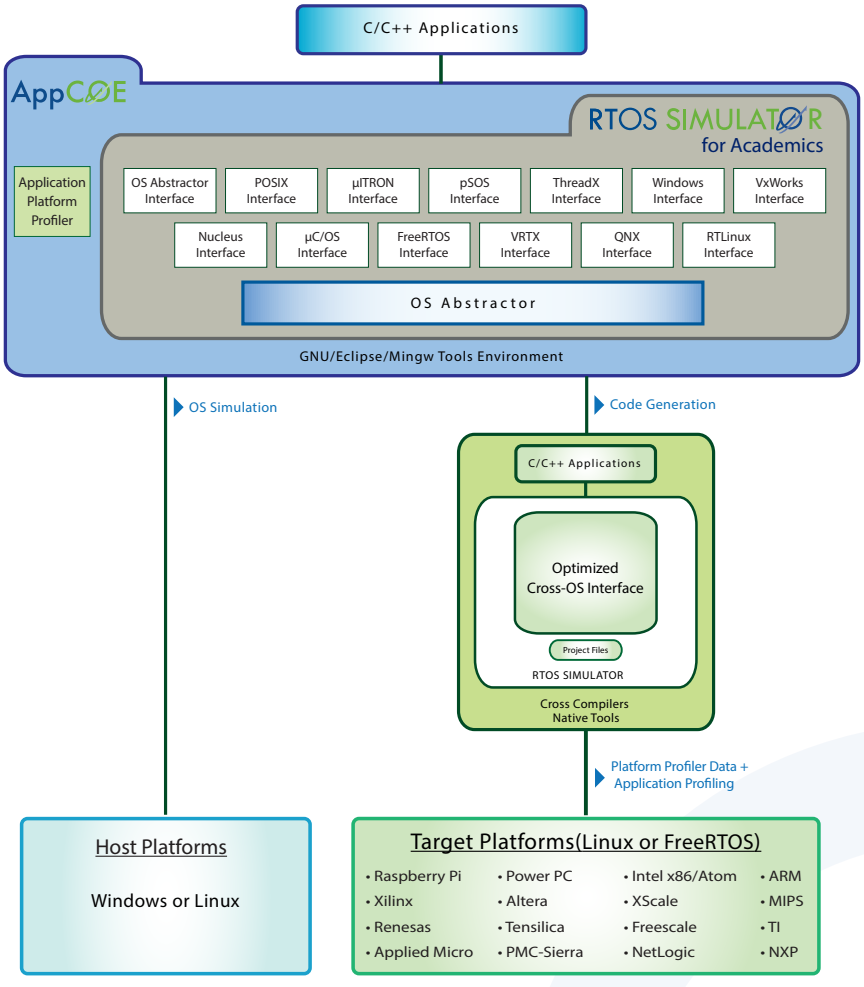
RTOS SIMULATOR for Academics

Tech Datasheet

DEVELOP AND TEST EMBEDDED APPLICATION ON WINDOWS OR LINUX HOST MACHINE

MapuSoft's RTOS Simulator allows engineers to develop and test commercial RTOS applications on Windows or Linux host environments. Most commercial RTOS's are expensive to purchase and obtaining them from di¬fferent sources is difficult and time consuming. Industry demands that students have experience with popular commercial RTOS's without which the program and the students will be of little value to Industry. This is where MapuSoft's RTOS Simulator™ can provide commercial RTOS environments at a very low price. RTOS Simulator eliminates the need for the for expensive target hardware while learning RTOS applications and testing.

Using RTOS Simulator as a development platform



CROSS_COMPILE, DOWLOAD AND TEST APPLICATIONS ON VARIOUS SUPPORTED TARGET HARDWARE

MapuSoft's RTOS Simulator allows engineers to generate optimized RTOS hypervisor source code to enable various RTOS applications to be tested and profiled for performance on Raspberry boards and other supported target hardware. The hypervisor code can be hosted on Linux and FreeRTOS which are freely available for use. There is absolutely no need to purchase the actual
commercial RTOS's for your hardware, as MapuSoft's generated hypervisor code will support hosting various types of RTOS environment. This way, the students get good working experience on using an embedded target and further be able to develop application prototypes for their projects, thesis and other industry collaboration work. Please note that for any commercial deployment of the actual product that uses MapuSoft run-time code will require further licensing from MapuSoft.

MapuSoft's RTOS Simulator:

Colleges and Universities are generally faced with a limited budget for equipment and software. Professors and administrators must make hard choices about how to get the most out of what they have. Education suffers if students have limited access to the software tools and development environments used within industry. Students require a high level of access to the technology and tools that researchers and other professionals use on a daily basis. With RTOS Simulator implemented at your institution, students have the opportunity to develop optimized real-time applications for many industry leading OS platforms.
RTOS Simulator solutions let's students compile, run and debug many industry leading real-time applications on a host PC. RTOS Simulator can also be used as a virtualized test bench for complex embedded applications without the need for expensive end-item/target hardware. RTOS Simulators are available to emulate the following Operating Systems:

- VxWorks® (WindRiver)
- pSOS® (WindRiver)
- µC/OS™
- Linux®/POSIX
- Nucleus®(Mentor Graphics)
- Windows® (Microsoft)
- ThreadX® (Express Logic)
- micro-ITRON®
- FreeRTOS™
- VRTX™
- QNX™
- RTLinux™

RTOS Simulator is integrated with AppCOE, an Eclipse based framework packaged with CDT, BIRT and GNU x86 tools, providing a state-of-the-art IDE for development and testing. RTOS Simulator provides the following features when used as a development platform:

- Allows you to simulate real-time applications on Windows or Linux hosts by hardening and optimizing the underlying OS platform
- OS Abstractor Interface in non_source is provided in object format for development, simulation, testing and integration of applications on a x86 host environment
- Optionally, the OS Abstractor Interface library is available in full source code format for use with target native tools/software on Windows or Linux
- Source Code Generation option allows for gathering profiler data regarding the application and the OS Abstractor Interface so that they can be optimized
- RTOS Simulator also provides a virtualized test platform to simulate a system of applications interacting with each other on one or more CPU cores through simulated devices. Optionally, RTOS Simulator is available with source code to simulate OS Abstractor® applications integrated with native tools and/or software on Windows or Linux target environments

For more information please visit: https://www.mapusoft.com/rtos-simulator/

Execute your developed code on a Hardware (Raspberry-pi Board):

The Raspberry Pi is a low cost, credit-card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse. It is a capable little device that enables people of all ages to explore computing, and to learn how to program in languages

MapuSoft Raspberry Package includes:

- arm_development_tools: The GNU ARM Plug-ins for eclipse
- arm_toolchain: The GNU Embedded Toolchain for Arm is a ready-to-use, open source suite of tools for C, C++ and Assembly programming targeting Arm Cortex-M and Cortex-R family of processors. It includes the GNU Compiler (GCC) and is available free of charge directly from Arm for embedded software development on Windows, Linux
- include (folder): This folder contains all the header files of all interfaces for creating the application on AppCOE using the Mapusoft api's to run on raspberry target.
- lib (folder): This folder contains all the library files of all interfaces for building your project. You can link the libraries depending upon application to be developed in process, non-process and non-process along with profiler enabled.
- Workspace (folder): This folder contains raspberry workspace along with demo projects.

RTOS Simulator (using AppCOE IDE) can be used to run & debug the RTOS application on the Raspberry-pi Target Board (ARM1176 jzf-s) from Windows or Linux Host Machine. We support Raspberry-pi target board running with Raspbian operating system (Raspbian GNU/Linux 8 (Jessie) – Linux Raspberry-pi 4.4.50-v7+).

For more information on Interfacing Raspberry-pi Board with RTOS Simulator (Mapusoft's AppCOE) click link:
https://www.mapusoft.com/wp-content/uploads/documents/Interface_Raspberry_windows.pdf

MapuSoft Arduino Package includes:

- Serial interface for Arduino Board: It provides an abstracted API calls for Arduino calls from AppCOE IDE. This helps the user to invoke the Arduino APIs/calls/Functions from their RTOS based application running in AppCOE IDE.
- Arduino Board support functions: Arduino functions to work with AppCOE IDE. It helps the user to connect various sensors and actuators via the Arduino board.
- Sample exercises: Arduino based non-RTOS applications that can run from AppCOE IDE.

https://www.mapusoft.com/wp-content/uploads/documents/Lab_exercises.pdf

RELEVANT LINKS

- A free evaluation can be downloaded here:
  http://mapusoft.com/downloads/
- For any technical or sales questions please submit a ticket at the MapuSoft support site at this link:
  http://mapusoft.com/support
- You can contact MapuSoft to request a license key for evaluation click this link:
  https://www.mapusoft.com/contact/

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