UPVLC SSSA CTU CEA UC MNIS VT

OCERA

Information Society Technologies

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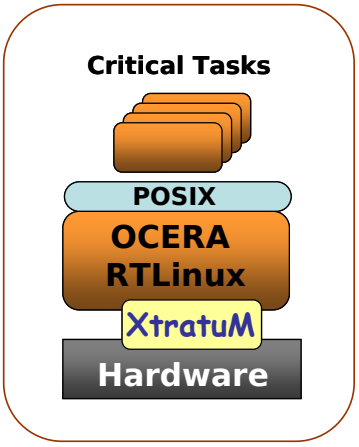
OCERA RTLinux-GPL

The components developed and integrated in the **OCERA RTLinux-GPL** improve the compatibility of original RTLinux-GPL with the Real-Time POSIX.13 subset standard. OCERA contributions go beyond current POSIX standard and implement some POSIX draft proposals, which makes OCERA RTLinux-GPL one of the most technologically advanced RTOS.



OCERA RTLinux-GPL is based on the RTLinux-GPL_3.2-pre1 code, an open source project to provide hard real-time executive that works jointly with Linux. The mechanism used by the original RTLinux code to share interrupts between the real-time executive and the Linux kernel was patented (U.S. Patent No. 5,995,745) by Victor Yodaiken. The patente was licensed to be used under the GPLv2 license. Although covered by the GPLv2 the patent itself raised many worries among commercial companies.

For this reason **OCERA** incorpores a component developed by UPVLC team which implementes a completely new mechanism (based on research and results previous to the patent) to share interrupts among two or more running kernels. The new mechanism is called **XtratuM**, and implements a virtual interrupt bus that dispatches interrupts in a daisy chain fashion to the executing domains.

Features

- POSIX Signals
- POSIX Timers
- POSIX Barriers
- POSIX Message Queue
- POSIX Trace
- POSIX High Resolution Timers
- POSIX Execution Timers

- Application Defined Scheduling
- Lightweight POSIX Trace

Scheduling Policies

- Static priorities (RMS), Dynamic priorities (EDF), Constant bandwith server (IRIS), application defined scheduling (ADS),
- Resource Protocol (SRP) to avoid priority inversion

Kernel characteristics

- Preemptive, multithreaded, reentrant kernel
- Low-latency enhancements
- Minimal dispatch latencies
- Guaranteed interrupt response time
- Tracing facilities

Communications protocols

- LightWeigth TCP/IP
- CAN and OpenCAN
- Real-Time Ethernet

Applications

- Process control
- Robotic control systems
- Multimedia applications
- Radar control systems
- Telecommunication systems
- Flight control and navigation systems
- Medical equipment control

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