About
The LITMUS\textsuperscript{RT} project is a soft real-time extension of the Linux kernel with focus on multiprocessor real-time scheduling and synchronization. The Linux kernel is modified to support the sporadic task model and modular scheduler plugins. Both partitioned and global scheduling are supported.

Goals
The primary purpose of the LITMUS\textsuperscript{RT} project is to provide a useful experimental platform for applied real-time systems research. In that regard, LITMUS\textsuperscript{RT} provides abstractions and interfaces within the kernel that simplify the prototyping of multiprocessor real-time scheduling and synchronization algorithms (compared to modifying a “vanilla” Linux kernel). As a secondary goal, LITMUS\textsuperscript{RT} serves as a proof of concept, showing that algorithms such as PFAIR can be implemented on current hardware. Finally, “lessons learned” using LITMUS\textsuperscript{RT} may find value as blueprints/sources of inspiration for other (both commercial and open source) implementation efforts.

Non-Goals
LITMUS\textsuperscript{RT} is not a production-quality system (currently). It is also not “stable,” i.e., interfaces and implementations may change without warning between releases. POSIX-compliance is not a goal; the LITMUS\textsuperscript{RT}-API offers alternate system call interfaces. While we aim to follow Linux-coding guidelines, LITMUS\textsuperscript{RT} is not targeted at being merged into mainline Linux. Rather, we hope that some of the ideas prototyped in LITMUS\textsuperscript{RT} may eventually find adoption in Linux.

Current Version
The current version of LITMUS\textsuperscript{RT} is 2010.1 and is based on Linux 2.6.32. It was released on 05/19/2010 and includes plugins for the following scheduling policies:

- Partitioned EDF with synchronization support (PSN-EDF)
- Global EDF with synchronization support (GSN-EDF)
- Clustered EDF (C-EDF)
- PFAIR (both staggered and aligned quanta are supported)

Please refer to the download and installation sections on the LITMUS\textsuperscript{RT} web site for details.

Earlier versions, which supported additional scheduling policies, include LITMUS\textsuperscript{RT} 2008 (based on Linux 2.6.24) and LITMUS\textsuperscript{RT} 2007 (based on Linux 2.6.20).

The first version of LITMUS\textsuperscript{RT} (implemented in Spring 2006) was based on Linux 2.6.9.

Development Plans
There are plans to port LITMUS\textsuperscript{RT} to PowerPC and ARM platforms.

Collaborators
The LITMUS\textsuperscript{RT} project is led by Dr. James H. Anderson. The implementation effort is carried out by students of the Real-Time Systems Group at the University of North Carolina at Chapel Hill:

- Björn B. Brandenburg (current maintainer)
- Andrea Bastoni (visiting from the University of Rome “Tor Vergata”)

Additional collaborators contributed to the previous LITMUS\textsuperscript{RT} 2008 and the LITMUS\textsuperscript{RT} 2007 versions.

Research Support
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Publications


For More Information
Dr. James Anderson
Department of Computer Science
University of North Carolina at Chapel Hill
CB#3175, Frederick P. Brooks, Jr. Building
Chapel Hill, NC 27599-3175
Phone: (919) 962-1757
Fax: (919) 962-1799
E-mail: anderson@cs.unc.edu

http://www.cs.unc.edu/~anderson/litmus-rt/