

# Real-time Support for Multicore Platforms

**Giorgio Buttazzo**  
**RETIS Lab**  
**Scuola Superiore Sant'Anna**

## *Abstract*

The continuous increase of software complexity in embedded systems reflects on applications consisting of a large number of concurrent activities that share common computational resources. Several of such applications have stringent performance requirements and may have to execute on different hardware platforms, including multi-core heterogeneous architectures with specialized computational units.

Designing, analyzing, and programming such complex systems is currently done by ad-hoc practices, which often lead to inefficient solutions and unpredictable behavior. The development of a solid design framework for exploiting next generation platforms represents a key research challenge for the near future, affecting operating system mechanisms, analysis methodologies, and development tools, which today are mostly available for single core platforms.

The objective of this talk is to introduce the key requirements that a software framework should have to simplify programming, analysis, and implementation of parallel real-time applications on multi-core platforms.

## *Brief Bio*



Giorgio Buttazzo is Full Professor of Computer Engineering at the Scuola Superiore Sant'Anna of Pisa. He graduated in Electronic Engineering at the University of Pisa in 1985, received a Master in Computer Science at the University of Pennsylvania in 1987, and a Ph.D. in Computer Engineering at the Scuola Superiore Sant'Anna of Pisa in 1991. He has been Chair of the IEEE Technical Committee on Real-Time Systems, and Program Chair and General Chair of the major international conferences on real-time computing. He is Editor-in-Chief of the Journal of Real-Time Systems (Springer) and Associate Editor of the IEEE Transactions on Industrial Informatics.

In 2012 he became IEEE Fellow "for contributions to dynamic scheduling algorithms in real-time systems". In 2013, he received the Outstanding Technical Contributions and Leadership Award, from the IEEE Technical Committee on Real-Time Systems. He has authored 6 books on real-time systems and over 200 papers in the field of real-time systems, robotics, and neural networks.