

# A Survey of Timing Verification Techniques for Multi-Core Real-Time Systems

by

Claire Maiza, Hamza Rihani, Juan M. Rivas, Joël Goossens,  
Sebastian Altmeyer, and Robert I. Davis  
published in ACM Computing Surveys, July 2019

**Abstract:** This survey provides an overview of the scientific literature on timing verification techniques for multi-core real-time systems. It reviews the key results in the field from its origins around 2006 to the latest research published up to the end of 2018. The survey highlights the key issues involved in providing guarantees of timing correctness for multi-core systems. A detailed review is provided covering four main categories: full integration, temporal isolation, integrating interference effects into schedulability analysis, and mapping and allocation. The survey concludes with a discussion of the advantages and disadvantages of these different approaches, identifying open issues, key challenges, and possible directions for future research

## Classification of techniques:

- Full Integration
- Temporal Isolation
- Integrating interference effects into Schedulability analysis
- Mapping and Scheduling

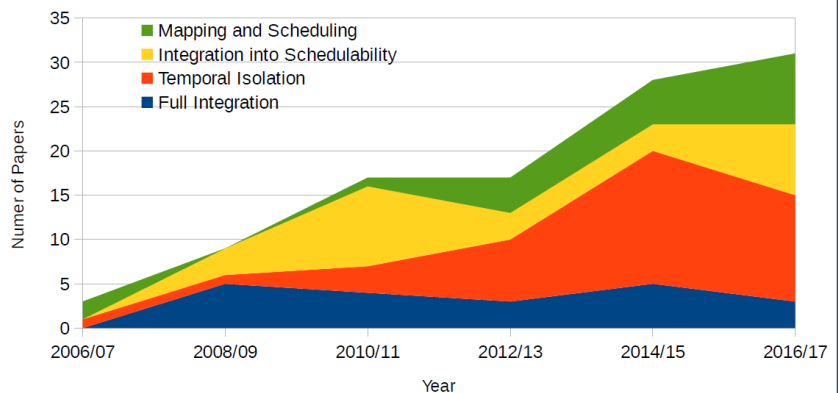


Fig. 1. Distribution of classified papers over the past 10 years

Claire Maiza, Hamza Rihani, Juan M. Rivas, Joël Goossens, Sebastian Altmeyer, Robert I. Davis, A Survey of Timing Verification Techniques for Multi-Core Real-Time Systems. *ACM Computing Surveys*, 52, 3, Article 56 (July 2019), 37 pages. DOI=10.1145/3323212. The definitive version is available at <https://dl.acm.org/citation.cfm?id=3323212>



Use the QR code or URL to access the authors version of the survey