Towards the Combination of Work-Stealing and Semi-Partitioned Scheduling for Parallel Tasks

CISTER - Research Center in
Real-Time & Embedded Computing Systems

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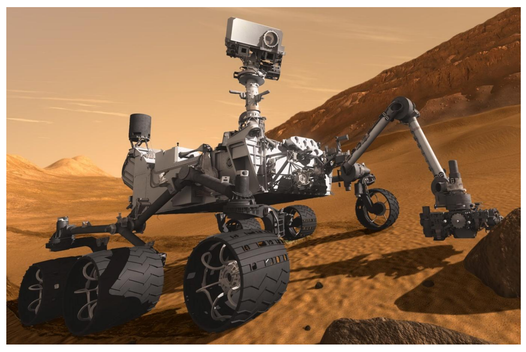
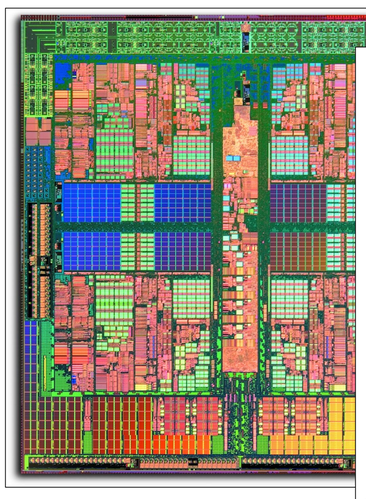
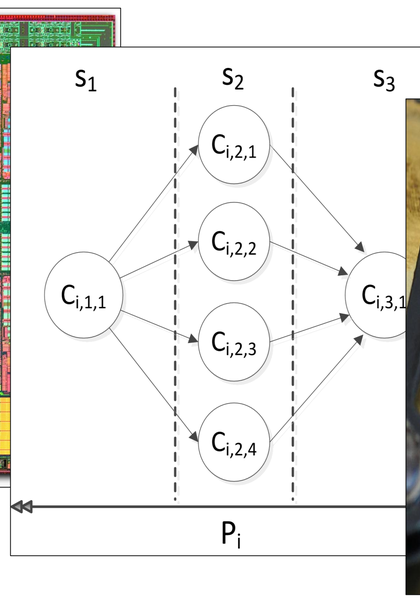
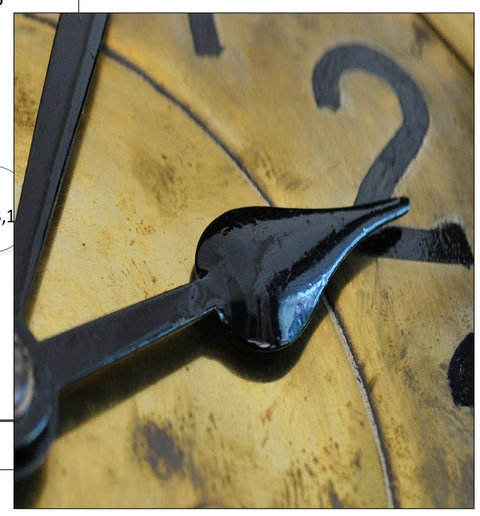
Motivation

- Multi/many-processor platforms
- Parallel Computing Paradigms
- Semi-partitioned scheduling
- High Performance
- High Responsiveness

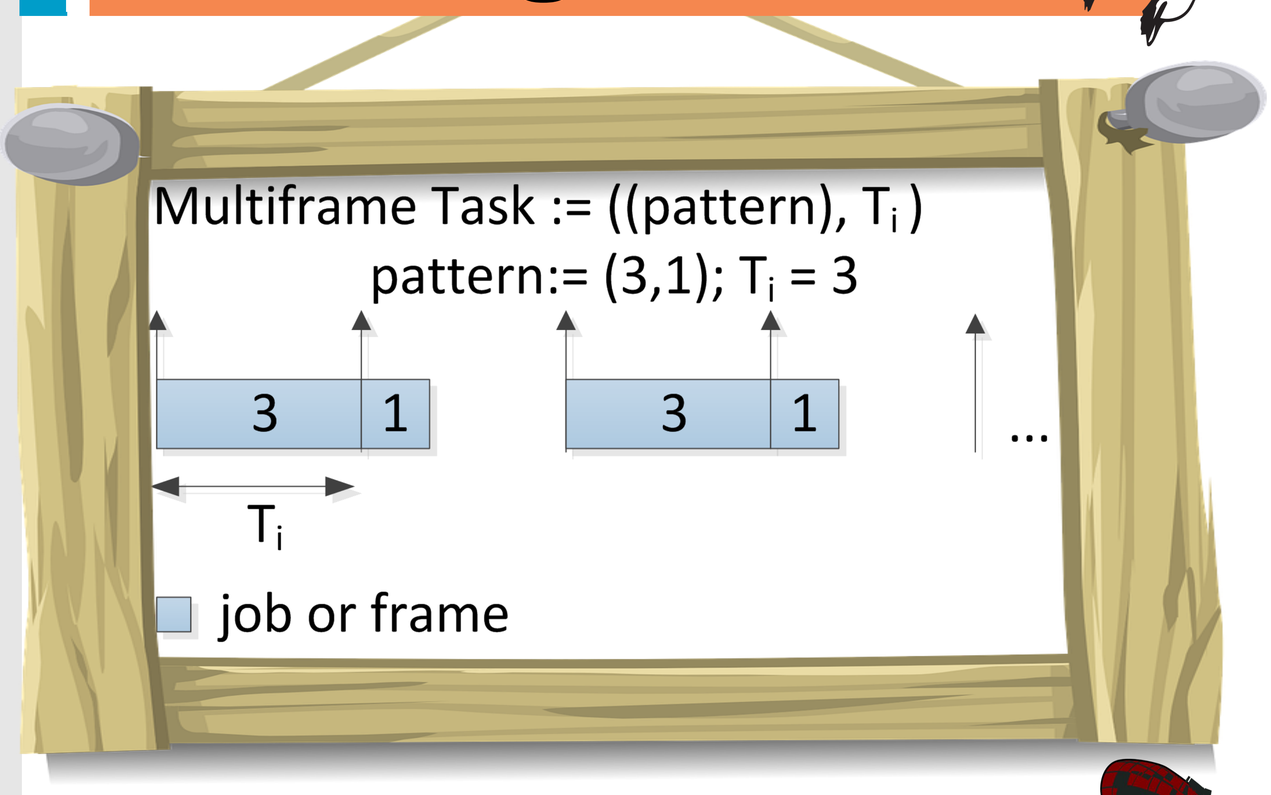




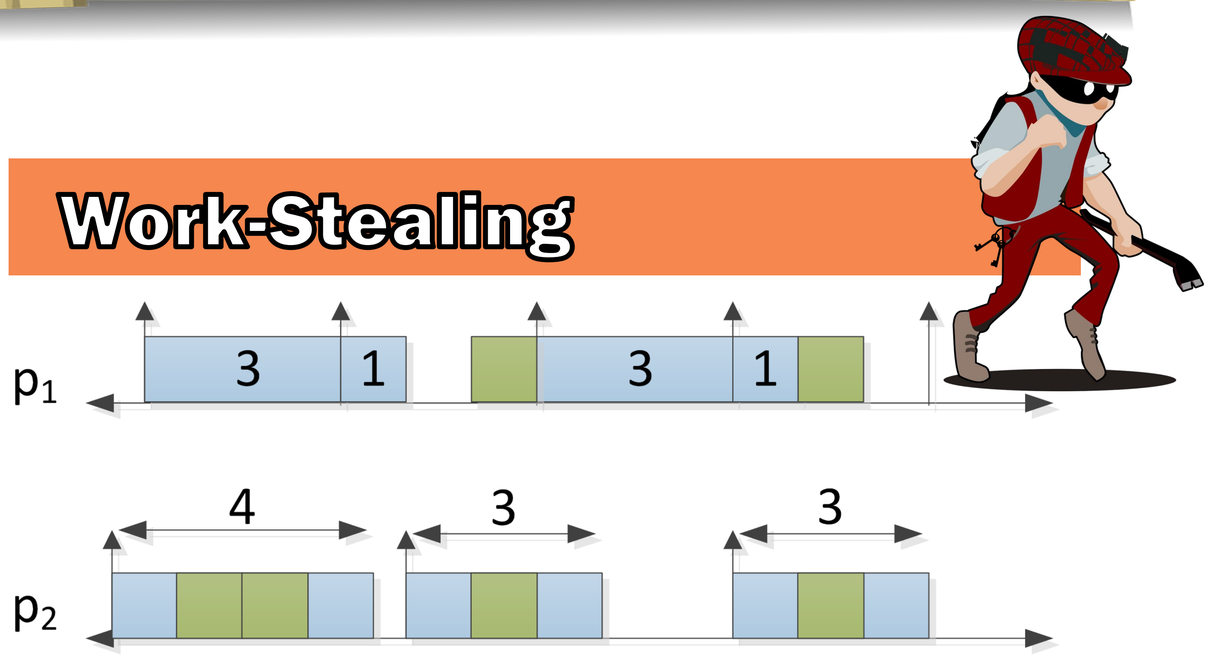




Limited Migrative Model



Work-Stealing

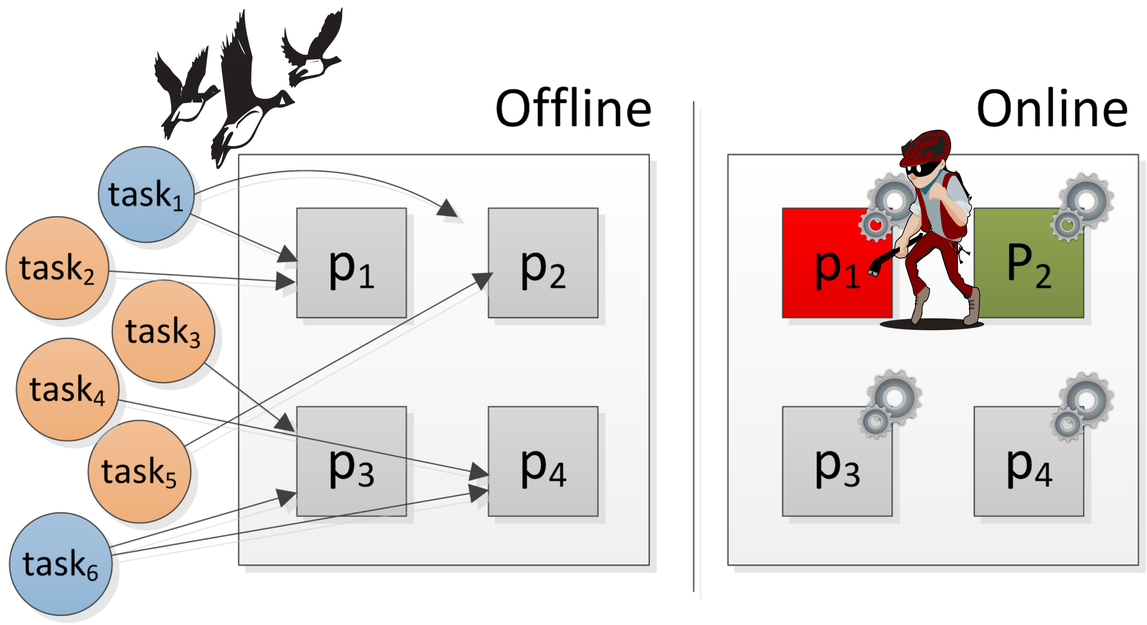


Parallel task
Parallel region
Sequential region

Current Research

- Extension of the Limited Migrative model to support parallel computations
- Fully partitioned tasks (non-migrating tasks)
- Global multiframe tasks (migrating tasks)
- Migrating tasks can be subject to work-stealing

Proposed Approach



Concluding Remarks

- Load balancing among cores
- Limited number of migrations
- High Performance
- Better Responsiveness

References

[1] F. Dorin, P. M. Yomsi, J. Goossens, and P. Richard. Semi-partitioned hard real-time scheduling with restricted migrations upon identical multiprocessor platforms. In RTNS, 2010.

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