Mission:

This Cost Action aims at consolidating European research on this important field, by coordinating the European research groups working on the development of complementary, interdisciplinary aspects of Transactional Memories, including theoretical foundations, algorithms, hardware and operating system support, language integration and development tools, and applications.

Objectives:

☐ Facilitate and initiate the development of novel TM algorithms, platforms, and verification tools by identifying the trends and needs, fostering standardization procedures, and defining standard benchmarks and evaluation methodologies for the assessment of TM systems.

☐ Incentivize knowledge transfer to the scientific community and practitioners by promoting dissemination of results through high-quality scientific publications, developing showcases targeting the ICT industry.

☐ Increase the prominence of the research area to the practitioners and general public by targeting the mainstream media.

☐ Create an interdisciplinary European research networking on TM that achieves sustainability beyond the Action by enlarging the network of experts beyond those initially involved, and establishing networks of experts that can persist beyond its lifetime.

☐ Foster the education of young researchers through Training Schools and visits to foreign laboratories supported by Short Term Scientific Missions.

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Grant Holder of the Action:
INESC-ID, PT

Countries:
CH, DE, DK, ES, FR, GR, IL, IT, NO, PL, PT, RS, SE, TR, UK

COST is supported by the EU RTD Framework Programme

www.eurotm.org
WG3: Hardware’s & Operating System’s Supports

Albeit TMs can be purely implemented in software, there is a growing consensus that some form of hardware support is desirable to improve performance. By providing hardware level support for conflict detection and version management, in fact, the bookkeeping overhead incurred by STMs can be drastically reduced, making TMs’ performance superior even to that of hand-crafted, fine grain, locking. On the other hand, the implementation of these mechanisms in hardware is way more problematic than in software, as this can entail invasive, risky modifications of crucial components of existing processors such as cache, TLB and bus protocol.

WG Leader: Prof. Gilles Muller

WG5: Applications & Performance Evaluation

TMs appear to have a huge potential in simplifying the development of parallel applications. On the other hand, being the research field on TMs still in its infancy, the number of complex benchmarks for TMs currently available is still very limited, and the real-world applications pioneering the adoption of TMs are probably even less. This represents a major impairment not only for realistically evaluating the performance of the various TM solutions proposed in literature, but also for precisely assessing the usability of TMs in complex large scale applications and across the many different application domains that could potentially benefit from their adoption (including web-based applications, video-games, CAD systems, stream processors, financial healthcare, video-editing, navigation systems, simulators, graph analysis toolkits, just to mention a few).

WG Leader: Prof. Pascal Felber

WG2: Theoretical Foundations & Algorithms

Unlike database transactions, in a TM transactions do not execute in a sand-boxed environment. This exposes TM transactions to hazardous execution scenarios that would not be filtered out by the safety and liveness properties normally ensured in a DBMS environment.

WG Leader: Dr. Tim Harris

WG1: Cross-WG Activities, Showcases

WG1 plays a special role within this Action by bundling cross-WG activities in order to ensure their cohesion and boost inter-disciplinary collaborations. Specifically, this WG will be in charge of the integration of the remaining four WGs so that researchers in these different fields can share their common expertise, favouring cross-fertilization and minimizing fragmentation of efforts.

WG Leader: Prof. Luis Rodrigues

SHORT-TERM SCIENTIFIC MISSIONS

Short-Term Scientific Missions are the Action’s major means for community and capacity building as they allow scientists to go to research groups and institutions involved in the Action. These missions are particularly intended for young scientists, to foster jointly supervised research work between European institutions. The STSM programme also includes missions by senior researchers that may include joint research on emerging topics and the preparation of multilateral research projects. More information about the application process and deadlines can be found in EuroTM’s website.