



Séminaire Informatique Haute Performance @ Campus Teratec

Séminaire n°37 du Jeudi 07 Janvier 2016, 10h, Ter@tec.

Correctness Analysis of MPI-3 Non-Blocking Communications in PARCOACH

Jeudi 07 Janvier 2016, Julien Jaeger, Ingénieur-Chercheur au CEA, nous présentera une amélioration de l'outil PARCOACH permettant de vérifier l'utilisation des communications non-bloquantes MPI.

Voici le résumé de cette présentation qui aura lieu dans la salle Paul Gauguin à Ter@tec, à 10h.

Correctness Analysis of MPI-3 Non-Blocking Communications in PARCOACH

The first release of MPI programming model contained collective operations and non-blocking communications. MPI-3 merged these two features to provide non-blocking collectives. But currently, an efficient use of these functions is very rare because the behavior of non-blocking communications, and especially non-blocking collectives, is not well understood by most users.

We propose an in-depth analysis of the non-blocking communications API (point-to-point and collective) to help programmers to include non-blocking collectives to MPI programs with blocking collectives and non-blocking communications, we improved the PARCOACH tool for checking correctness of MPI call sequences.

This enhancement focuses on correct call sequences of all flavor of collective calls on one side, and on the presence of completion calls for all non-blocking communications on the other side. Some evaluation shows the output of the different analyses, along with some overhead figures. These overheads are negligible compared to the already existing checking of blocking collectives, and remain under 10% of original compilation time.
