

POP3: Performance Optimisation and Productivity 3

Description

The key element to ensure efficient use of HPC infrastructures is to optimize the performance and efficiency of the applications. The Centre of Excellence on Performance Optimization and Productivity (POP CoE, www.pop-coe.eu) was initiated in October 2015 with the fundamental purpose of assisting a broad community of HPC application developers and users in both science and industry domains helping them to understand the performance-related issues of their applications and thus improve their efficiency and productivity. This fundamental purpose is reached by externally and objectively auditing the performance of the codes to all interested users, by providing not only qualitative but also quantitative analysis through the use of POP tools and methodology. The current proposal, Performance Optimization and Productivity 3 (POP3), is articulated in 3 main pillars: services, users, and co-design. POP services mainly focus on performance assessments with the goal to evaluate code performance and scaling, identifying the main sources of inefficiency and providing some insight and recommendation about how to improve it. POP3 also provides second level services that have been extended and include proof of concepts, energy efficiency and advisory studies. Although POP3 will continue targeting all scales and types of users, with this proposal we will focus our efforts on larger scales, assessing the execution on the EuroHPC sites of some of the European flagship HPC applications for other CoEs. However, POP3 will still provide services to prescribers and SMEs to promote an efficient usage of the computing resources. The co-design will be covered in two dimensions. Internally in POP3 we will co-design the tools and methodology to be able to analyse the applications on the selected platform at the selected scale. Externally, POP3 will identify best practices and kernels that will be offered to other European projects as well as the wide audience of parallel applications.

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