



NEMO Performance Assessment Summary

Client	Cyril Mazauric, Bull ATOS
Lead Analyst	Jesus Labarta, Barcelona Supercomputing Center
Co-Analyst	Judit Gimenez, Barcelona Supercomputing Center

The NEMO Audit located two main areas for improvement, one of which is being further investigated in a POP Performance Plan. Changes made based upon the POP suggestions will significantly reduce the runtime of the NEMO code and hence save resources.

The application has very good load balance but many regions of the code had low Instructions per Cycle ([IPC](#)) which suggests that code restructuring is needed and could improve the speed of these regions. This audit also suggested the potential for the overlap of operations with OpenMP which would allow for better scaling due to concurrent calculations that are currently performed in order.

Further work in a POP Performance Plan will analyse the memory access pattern and provide more detailed information about where in the source code there is potential for optimisation and quantify these savings.

Nemo is an oceanographical application developed by a European consortium. The data for this POP Audit was gathered by ATOS on their machine.

A full technical report can be found at https://pop-coe.eu/sites/default/files/pop_files/pop-ar-nemo.pdf

For more information contact: POP team

Email: pop@bsc.es

Web: <https://pop-coe.eu>



Notices:

The research leading to these results has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No "676553".

© 2015 POP Consortium Partners. All rights reserved.