

Subject: IFS benchmark RAPS18 update 2

Dear Colleague,

We would like to announce the release of the IFS benchmark RAPS18 update 2.

This release replaces any older versions. Changes to the RAPS18 version update 1 are rather minimal.

The major changes are

- \* New Product GEneration (PGEN) version which only requires C/C++
- \* Fixed all the known outstanding bugs in the single precision
- \* Fixed occasional hang situations where only a subset of MPI tasks failed
- \* Operational output with field data bases FDB5 and restart output now closely mimic ECMWF operations
- \* Ability to run a target 10-day ENSEMBLE forecasts (FC) instead of the default 15-day FC
- \* Clear separation between ENS control (with EC-physics) and perturbed ENS member forecasts (with stochastic physics)
- \* I/O-server tasks can have less (more) threads than compute tasks
- \* Means to perform MPI rank reordering, when the underlying MPI implementation supports this
- \* Approximate calculation of the MPI startup cost
- \* Summaries for the reference output data have been recreated
- \* Miscellaneous model-script changes and especially to track summary statistics (jobinfo & benchmark\_summary)

The double precision results are reproducible on our current Cray XC40 system.

This benchmark will form the basis for the benchmark that tenderers who respond to ECMWF's High Performance Computing Facility Tender (ECMWF/ITT/2018/270) will be expected to run and report results from. A notice about the Tender is published on ECMWF's Suppliers webpage (<https://www.ecmwf.int/en/about/suppliers>); it provides links to the Prior Information Notice and the Corrigendum Notice published in the Supplement to the Official Journal of the EU.

We strongly encourage you to start immediately with this benchmark update and concentrate in particular to the following resolutions in mind:

- \* Coupled TCo1999L137 HRES FC using single precision with operational I/O turned on
- \* Coupled TCo1023L137 ENS FC using single precision with operational I/O turned on
- \* Coupled TCo399L137 HRES FC using double precision with research I/O turned on
- \* TCo255L137 TLADJ using double precision and running it in so called verify-mode
- \* TCo399L137 OOPS FC with WAM coupling only and using double precision without field output

Detailed instructions on how exactly these resolutions will be used in the ECMWF/ITT/2018/270 context will be provided upon release of the ITT itself.

The benchmark files can be downloaded from the FTP-site using the following credentials (please use the commands "ftp" or "pftp" or "ncftp", but \*not\* "sftp"):

```
% ftp ftp.ecmwf.int  
Username: ecbench  
Password: <see below>
```

After that you need to "cd /ecbench/raps18" and then get the files.

The source code tarball file is in the file RAPS18u2.tgz with accompanied documentation in the file raps18u2.pdf.

For input files you need to "cd /ecbench/raps18/inputs" and then get the files.

Please note that your company needs a licence to get the password for this FTP-site. If such licence already exists, you can request the ftp-password by sending an email to [ecbench@lists.ecmwf.int](mailto:ecbench@lists.ecmwf.int).

This is also the right channel to ask any related questions.

Please use this email address also when you do not already have a licence to access our benchmarks. We will get you in touch with relevant people at ECMWF.

With best regards,

Sami Saarinen  
Iain Miller

ECMWF, HPC Applications Team  
(Fri, 12 Oct 2018 14:54:15 +0100)