

COSMO-1 on GPU Status

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Overview

- Version based on COSMO 5.0 being developed
- Focus on functionality required for COSMO-1
- Regular COSMO-1 runs in GPU based machine (Cray XK7 @ CSCS) planned starting from end of September
- Validation period (parallel CPU runs) and continuous refinements (functionality & performance) for ~3 months

C Status overview

Parts	Status	Delivery / Required work	Remark
Physics	On-going	18/09/2014	Only turbulence and radiation still on-going.
Fortran-C++ interface	On-going	05/09/2014	First version working. Modifications on-going.
Dynamical core	On-going	18/09/2014	Working. Including new FW solver. Some features for C-1 still missing.
Assimilation	Ready to merge	1 day. On-demand	Tested with Cray, problem with PGI No LHN
Communication	Ready		Use GCL for GPU
Structure code (e.g. initialization, Imorg.f90,)	On-going	18/09/2014	Mostly in Imorg.f90 + some utility functions
Diagnostics	Not started	2 days (for minimal set)	Minimal set sufficient for standard verification (also for CALMO)
Output	Not started	30/09/2014	Port already available, only need to be merged into 5.0
Single precision	On hold		Doesn't work for assimilation

O Summary

- Timeline for moving COSMO-1 to Cray XK7 is very well inline with CALMO plans on Piz Daint.
- Consolidated and validated version should be available in October 2014 timeframe
- Further improvements will be made (functionality, performance, single precision, ...), but may be too late for CALMO
- In case you have special needs (namelists, output fields, ...) please tell us!