

The IPSLCM6 configuration

Table of Content

The IPSLCM6 configuration	1
1. The IPSLCM6 configuration	2
2. Resolutions and configurations	2
2.1. IPSLCM6A-VLR	2
3. Ressources on usual machines	2
3.1. TGCC	2
3.1.1. Bull Curie thin nodes	2
3.2. IDRIS	2
3.2.1. IBM : Ada	2
4. Command summary	2
4.1. headers and config.card	3
4.1.1. curie	3
4.1.2. ada	3
4.2. Restart files	3
5. Evaluation	3

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1. The IPSLCM6 configuration

IPSLCM6 is **the configuration of the coupled IPSL model** under development for the CMIP6 simulations including atmosphere, land, ocean, sea ice and carbon cycle. This configuration includes :

- the model components:
 - LMDZ, the atmospheric model ;
 - NEMO, the ocean model including sea ice (LIM2) and marine biogeochemistry (PISCES) ;
 - ORCHIDEE, the land model ;
 - the OASIS-MCT coupler ;
- the tools :
 - XIOS, the I/O server ;
 - scripts to run the model and to perform post processing and the ksh functions library libIGCM

As a reminder, here are the versions of the components and tools.

```
vi modipsl/util/mod.def
```

2. Resolutions and configurations

One configurations is available :

- ORCA2xLMD9695-L39.

2.1. IPSLCM6A-VLR

By default the coupled version is IPSLCM6A-VLR.

3. Ressources on usual machines

3.1. TGCC

3.1.1. Bull Curie thin nodes

The basic configuration uses 128 computing cores or 8 nodes: 1 for XIOS, 19 for NEMO, and 27 MPI and 4 OpenMP for LMDZ.

3.2. IDRIS

3.2.1. IBM : Ada

The basic configuration uses 56 computing cores or 2 nodes: 1 for XIOS, 7 for NEMO, and 24 MPI and 2 OpenMP for LMDZ.

4. Command summary

Here are the commands you need to know if you want to retrieve and compile the IPSLCM5_v5 model and if you want to setup and run an EXP00/pdControl experiment:

```
mkdir MONREPERTOIRE ; cd MONREPERTOIRE
svn_an0 # svn co http://forge.ipsl.jussieu.fr/igcmg/svn/modipsl/trunk modipsl
cd modipsl/util
./model IPSLCM6_rc0
cd ../config/IPSLCM6
gmake # by default ORCA2xLMD9695-L39
cp EXPERIMENTS/IPSLCM5/EXP00/config.card .
```

```
vi config.card # modify JobName (at least) : MYJOBNAME, restarts
../util/ins_job # Check and complete job's header
cd MYJOBNAME
vi Job_MYJOBNAME # modify PeriodNb, adjust the time, headers ...
llsubmit Job_MYJOBNAME # IDRIS
ccc_msub Job_MYJOBNAME # TGCC
```

4.1. headers and config.card

4.1.1. curie

```
#MSUB -n 128 # reservation des coeurs pour le job (ce doit etre egal a l'ensemble de process/threads : par exemple 27x4 +
#MSUB -x # Specifier que le noeud doit être dédié
#MSUB -E '--cpu_bind=none'
```

4.1.2. ada

```
# Nombre de processus MPI demandes (ici 24 + 7 + 1 = 32)
# @ total_tasks = 32
# Nombre de coeurs réellement utilisés (ici 24 x 2 + 7 + 1 = 56)
# @ environment = "BATCH_NUM_PROC_TOT=56"
# Nombre de taches OpenMP/pthreads par processus MPI
# @ parallel_threads = 2
```

config.card on ada

```
=====
#D-- Executable -
[Executable]
#D- For each component, Real name of executable, Name of executable for oasis
ATM= (gcm.e, lmdz.x, 24MPI, 2OMP)
SRF= ( " " , " " )
SBG= ( " " , " " )
OCE= (opa, opa.xx , 7MPI)
ICE= ( " " , " " )
MBG= ( " " , " " )
CPL= ( " " , " " )
IOS= (xios_server.exe, xios.x, 1MPI)
```

4.2. Restart files

IPSLCM6 configuration could restart from any IPSLCM5A restart file.

5. Evaluation

Remember to evaluate the files produced by this simulation.