CFS PORTING

Modules Needed To Be Loaded

- **For Compiling Libraries**:
  - module switch PrgEnv-cray PrgEnv-intel
  - module switch intel intel/16.0.3.210
  - module load cray-netcdf
  - module load cray-hdf5
  - module unload craype-hugepages8M
  - module load craype-sandybridge

Compiling Libraries:

- Compiling sp_v2.0.2:
  - cd $HOME/$CFS_DIR/lib/sorc/pmb/codes/nwprod/lib/sorc
  - cd sorc
  - Vim makelibsp.sh_Linux
  - Change fortran compiler if its other than ifort/ftn
  - Change C compiler if its other than icc/cc
  - Change –openmp to -qopenmp
  - ./makelibsp.sh_Linux
  - Copy generated libsp_v2.0.2_* to lib directory.

Compiling Libraries:

- Try to compile bacio_v2.0.1

Libraries Needed for CFS Compilation

- sfcio
- bacio_v2.0.1
- w3nco_v2.0.3
- w3emc_v2.0.3
- sp_v2.0.2
- nemsio.v2.2.0
- sigio_v2.0.1
- Landsfcutil
- lp

Compiling CFS Components

- Modules needed to be loaded:

  - module unload craype-sandybridge craype-ivybridge craype-haswell
  - module load craype-broadwell
  - module switch PrgEnv-cray PrgEnv-intel
  - module switch intel intel/16.0.3.210
  - module load cray-netcdf
  - module load cray-hdf5
  - module unload craype-hugepages8M

Compiling CFS Continued ….

- Cd $CFS_DIR
- Cd sorc
- Cd cfs_atmos_fcst.fd
- Vim makefile.sh
- export BASEDIR=$HOME/cfs.v2.1.18-rfp/ [above export LIBDIR variable]
- rm *.o
- rm *.mod
- Mv/rm cfs_atmos_fcst
- ./ makefile.sh

Other Modules Needs to be built:

- cfs_sigavg.fd
- cfs_mpi_timavg_3d.fd
- cfs_atmos_fcst.fd
- cfs_ocean_mom4ice.fd
- cfs_tripo2reg.fd
- cfs_sstavg.cd
- cfs_sighdr.fd
- cfs_overparm_grib.fd
- cfs_mppnccombine.cd
- cfs_ao_coupler.fd,etc

Running CFS:

- Change CFS_DIR and RUN_DIR in JCFS_FORECAST and setup.xc.intel
- Before deleting rundirs directory take precautions for ini and fix directories inside rundirs.
- cd run
- In submit_fcst.pbs we have:
  - export NPROCS_c=1
  - export NPROCS_o=72
  - export NPROCS_a=90
  - let tot_fcst_tasks=$NPROCS_c+$NPROCS_o+$NPROCS_a
  - export tot_fcst_tasks=$tot_fcst_tasks

  - export C_TASKS=" -n ${NPROCS_c}"
  - export OM_TASKS=" -n ${NPROCS_o} -N36 -d1 -cc depth"
  - export AM_TASKS=" -n ${NPROCS_a} -N18 -d2 -cc depth env OMP_NUM_THREADS=2"

Running CFS Continued:

- So the coupler part runs on 1 process/node
- The ocean part runs on 72 processes (2 nodes)
- The atmos part runs on 90 processes with 2 OpenMP threads, 18 MPI ranks per node = 5 nodes
- Total: 8 nodes

- aprun uses MPMD.
  - We find the full launch line in the script scripts/excfs_fcst.sh.ecf
  - time $APRUN $C_TASKS $PGM_c : $OM_TASKS $PGM_oc : $AM_TASKS $PGM_am 1>out.aprun.$nhourb 2>err.aprun.$nhourb
  - ./excfs_fcst.sh.ecf

THANK YOU !!!

- For any help please mail us at:
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