GFS- SL Porting

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Copy source code

Make your directory GFS
tar –xvf /home/apps/GFS-SL.tar

Libraries

- bacio_v2.0.1
- gfsio-v1.1
- Landsfcutil
- nemsio_v2.2.1
- sigio_v2.0.1
- w3emc_v2.0.5
- esmf_3_1_0rp2
- lp
- Sfcio
- sp_v2.0.2
- w3nco_v2.0.6

Executables

- global_chgres.fd
- global_fcst.fd
- global_sfchdr.fd
- global_cycle.fd
- global_fcst.fd.asis
- global_sighdr.fd

Libraries Compilation

- Load Modules
  - module swap PrgEnv-cray PrgEnv-intel
  - module swap intel intel/16.0.3.210
  - module unload craype-sandybridge craype-ivybridge craype-haswell craype-broadwell
  - module load craype-sandybridge
  - module unload craype-hugepages8M
  - Module unload cray-libsci
  - module list

  - export BASEDIR=/home/nmanapraga/IITM_APP_Demo/GSM
  - export HOMEDIR=$BASEDIR

Edit Makefile : sigio

- Open file and edit makefile
  - cc – C compilation
  - CC – CPP compilation
  - ftn – Fortran compilation

Compiler Flags

Feature	Cray	Intel	GNU
Listing	-hlist=a	-opt-report3	-fdump-tree-all
Free Format(ftn)	-f free	-free	-ffree-form
Vectorization	By default at –O1 and above	By default at –O2 and above	By default at –O3 or using –ftree-vectorize
Inter-Procedural Optimization	-hwp	-ipo	-flto (note: link-time optimization)
Floating-point Optimization	-hfpN, N=0…4	-fp-model	-f[no-]fast-math or -funsafe-math-optimizations
Suggested Optimization	(default)	-O2 –xAVX	-O2 –mavx –ftree-vectorize -ffast-math –funroll-loops
Aggressive Optimization	-O3 –hfp3	-fast	-Ofast –mavx -funroll-loops
Variables Size (ftn)	-s real64 -s integer64	-real0suze 64 -integer-size 64	-freal-4-real-8 -finteger-4-interger-8

Executable Compilataion

- Load Modules
  - module swap PrgEnv-cray PrgEnv-intel
  - module swap intel intel/16.0.3.210
  - module unload craype-sandybridge craype-ivybridge craype-haswell
  - module load craype-broadwell
  - module load craype-hugepages8M

  - module list

  - export BASEDIR=/home/nmanapraga/IITM_APP_Demo/GSM
  - export HOMEDIR=$BASEDIR

Edit Makefile for global_chgres

- Open file and edit makefile
  - cc – C compilation
  - CC – CPP compilation
  - ftn – Fortran compilation

Running

- Resource allocation PBS Script with aprun command
- Edit script JGDAS_FORECAST_HIGH and update NWPROD
- Copy JGDAS_FORECAST_HIGH_9hr as JGDAS_FORECAST_HIGH to test with reduced execution time
- Module load pbs
- And qsub submit_script

Thank You

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