Running-Flash-SNIa

July 8, 2017

1 Compiling and Running a SNIa_ddt Flash Simulation

Donald E. Willcox

1.1 Preparing to compile Flash

First navigate to the `Flash` directory, here called `autoDDT_dens_thresh`

```
In [22]: cd ~/codes/astro/flash/autoDDT_dens_thresh
         ls
```

```
bin    LICENSE                    setup                      setup_snia_ddt.sh   t
build  obj_GradDetParamBurn  setup_alt                      setup_snia_hddt.sh
docs   RELEASE                    setup_commands               sites
lib    RELEASE-NOTES           setup_snia_ddt_htest.sh  source
```

The `sites` subdirectory contains a set of directories named according to machine host names. Each of these directories contains the file `Makefile.h` which stores the settings `make` needs to build `Flash` for that machine.

```
In [23]: cd sites
         ls
```

```
alc.llnl.gov                    jacquard.nersc.gov
Aliases                            jaguar.ccs.ornl.gov
animal5                            jaguar.nccs.gov
archimedes.uchicago.edu      jubl.zam.kfa-juelich.de
bassi.nersc.gov                    karloff.lbl.gov
bgl.llnl.gov                    khorba.uchicago.edu
bgl.mcs.anl.gov                    klaus-laptop
bgl.sdsc.edu                    kraken.nics.tennessee.edu
bonsai.cfa.harvard.edu             lenovolaptop
brassica.asci.uchicago.edu   liturchi.uchicago.edu
buckbeak                     login1.pads.ci.uchicago.edu
cetus.asci.uchicago.edu      login2.pads.ci.uchicago.edu
clark.asci.uchicago.edu      lupin.uchicago.edu
code.uchicago.edu             mhd2.asci.uchicago.edu
```

```
coyote.lanl.gov                    miralac1
cthinkpad                         mongchi.uchicago.edu
ctsv.astro.sunysb.edu                 myristica.asci.uchicago.edu
cube.uchicago.edu                 nagini.uchicago.edu
datastar.sdsc.edu                 nightowl
duce.gsfc.nasa.gov                 oakley.osc.edu
elan.uchicago.edu                 optix.cs.uoregon.edu
eldorado.astro.sunysb.edu        osel.uchicago.edu
eldorado.uchicago.edu                 p655-4.nic.uoregon.edu
ellipse02.uchicago.edu                 Prototypes
ellipse03.uchicago.edu                 purple.llnl.gov
ellipse04.uchicago.edu                 pyramid.uchicago.edu
ellipse05.uchicago.edu                 qsc.lanl.gov
ellipse06.uchicago.edu                 r1.oit.ua.edu
ellipse08.uchicago.edu                 ramsusii.mps.ohio-state.edu
ellipse09.uchicago.edu                 ranger.tacc.utexas.edu
ellipse10.uchicago.edu                 rc2.ua.edu
ellipse11.uchicago.edu                 redstorm.sandia.gov
ellipse_pgf.uchicago.edu         saguaro.fulton.asu.edu
ellipse.uchicago.edu                  scarf.rl.ac.uk
eugenia.asci.uchicago.edu        scooter.asci.uchicago.edu
eureka.alcf.anl.gov                seaborg.nersc.gov
fen.bluegene.bnl.gov                SEAS10927.gwu.edu
fenp.bluegene.bnl.gov                 skeeter.asci.uchicago.edu
flash.uchicago.edu                sphere.uchicago.edu
flashviz.uchicago.edu                 splash.seas.gwu.edu
fleetwood.astro.sunysb.edu       sunspot.uchicago.edu
fornax.uchicago.edu                surveyor.alcf.anl.gov
franklin.nersc.gov                tagore-jr
fusion.lcrc.anl.gov                tp-login2
fusion.lcrc.uchicago.edu         tsoodzil.astro.uiuc.edu
gin.asci.uchicago.edu                 tuxedo.uchicago.edu
handy.cm.cluster                 uffda.asci.uchicago.edu
hawkmoon.uchicago.edu                 variable.as.arizona.edu
hera.llnl.gov                         variable.ph.ua.edu
hpc.msu.edu                        vestalac1
hydra.si.edu                        watanlsn.watson.ibm.com
icc-9.0_fornax.uchicago.edu      zeus.llnl.gov
ignition                         zingiber.asci.uchicago.edu
intrepid.alcf.anl.gov                 zingiber.uchicago.edu
```

To get my machine host name, I'll use the `hostname` command.

```
In [25]: hostname

snia-laptop
```

The `make` settings from `eldorado.astro.sunysb.edu` are typical for a workstation or laptop like mine so I'll just copy its directory to a new directory named according to the output of the `hostname` command. The expression `$(hostname)` in `bash` evaluates the command between the parentheses and substitutes the result of that command for the expression `$(hostname)`.

```
In [27]: cp -r eldorado.astro.sunysb.edu $(hostname)
```

The previous command created a new directory called `snia-laptop`, and I can see that it contains a `Makefile.h`

```
In [28]: cd snia-laptop
         ls

Makefile.h
```

1.2 Compiling Flash

Now that I've created a directory in `sites` with the same name as my machine hostname, I can setup and compile `Flash`. First let's return to the `Flash` top-level directory.

```
In [31]: cd ~/codes/astro/flash/autoDDT_dens_thresh
         ls

bin    LICENSE                     setup                       setup_snia_ddt.sh   t
build  obj_GradDetParamBurn  setup_alt                      setup_snia_hddt.sh
docs   RELEASE                     setup_commands               sites
lib    RELEASE-NOTES            setup_snia_ddt_htest.sh  source
```

On my computer, I installed python via the Anaconda package. Using the following command, I can list the available python environments. The default environment for me, called `root` below, is python 3, but we need python 2 to setup `Flash` for compiling, so I need to switch to the `py2` environment.

```
In [32]: conda info --envs

# conda environments:
#
py2                      /home/eugene/anaconda3/envs/py2
root                  *  /home/eugene/anaconda3
```

Here I switch to the `py2` environment where `python --version` will tell me I have access to python 2. When I'm in the python 2 environment, the text `(py2)` will be printed when I execute commands, so just ignore that in the remainder of this section.

```
In [33]: source activate py2
```

```
(py2)
```

Now let's have a look at the contents of the `bash` script `setup_snia_ddt.sh`, which calls the `setup` script for `Flash`. `Flash` is capable of doing many kinds of simulations, but I'm specifically interested in a Type Ia Supernova deflagration-to-detonation transition simulation, and I tell the `setup` script to build just such a simulation by writing `SNIa_ddt` after `./setup`.

Next comes `-objdir=` that specifies the directory where `setup` will put the source code I will need to compile in order to build a `SNIa_ddt` simulation.

`-2d` specifies I want a two-dimensional domain

`-nxb` is the number of blocks in the first dimension. Blocks are just chunks of individual grid cells in the domain.

`-nyb` is the number of blocks in the second dimension.

I'm being careful to say "first" and "second" because in the above options, `x` and `y` do not imply cartesian coordinates. In fact, the next option `+cylindrical` sets up a cylindrical 2-D axisymmetric coordinate system, where the "first" coordinate is the polar radial coordinate and the "second" coordinate is the axial coordinate.

`-maxblocks=` specifies the maximum number of blocks `Flash` will assign to any given processor.

`-with-unit=Particles/ParticlesMain` tells setup to include particles in this simulation. For `SNIa_ddt`, these are passive particles (they don't interact with the simulation physics) that just get carried around, advected along the fluid flow recording the thermodynamic state of the fluid so we can do post-processing later and do detailed nucleosynthesis calculations.

```
In [35]: cat setup_snia_ddt.sh
```

```
./setup SNIa_ddt -objdir=build/object_snia_ddt -2d -auto -nxb=16 -nyb=16 +cylindric
(py2)
```

And now let's try running the setup script.

```
In [36]: ./setup_snia_ddt.sh
```

```
Processing Shortcut file:
/home/eugene/codes/astro/flash/autoDDT_dens_thresh/bin/setup_shortcuts.txt
checking for needed files and directories
    checking sites Aliases file
    using site directory for site snia-laptop
generating default Units file
    Driver/DriverMain/Split
    Grid/GridBoundaryConditions
    Grid/GridMain/paramesh/interpolation/Paramesh4/prolong
    Grid/GridMain/paramesh/interpolation/prolong
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/headers
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/mpi_source
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/source
```

```
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/utilities/multigrid
    Grid/GridParticles/GridParticlesMapFromMesh
    Grid/GridParticles/GridParticlesMove/Sieve/BlockMatch
    Grid/GridParticles/GridParticlesMove/paramesh/PointToPoint
    Grid/GridSolvers/Multipole
    Grid/localAPI
    IO/IOMain/hdf5/serial/PM
    IO/IOParticles/hdf5/serial
    IO/localAPI
    Particles/ParticlesInitialization/WithDensity/CellMassBins
    Particles/ParticlesMain/passive/RungeKutta
    Particles/ParticlesMapping/meshWeighting/CIC
    Particles/localAPI
    PhysicalConstants/PhysicalConstantsMain
    RuntimeParameters/RuntimeParametersMain
    Simulation/SimulationComposition/Burn
    Simulation/SimulationMain/SNIa_ddt
    flashUtilities/contiguousConversion
    flashUtilities/general
    flashUtilities/interpolation/oneDim
    flashUtilities/nameValueLL
    flashUtilities/sorting
    flashUtilities/system/memoryUsage/legacy
    monitors/Logfile/LogfileMain
    monitors/Timers/TimersMain/MPINative
    physics/Eos/EosMain/Helmholtz/ExternalAbarZbar
    physics/Eos/localAPI
    physics/Gravity/GravityMain/Poisson/Multipole
    physics/Hydro/HydroMain/split/PPM/PPMKernel
    physics/materialProperties/NSE/NSEMain
    physics/sourceTerms/Burn/BurnMain/parametric/CONe2NSE
    physics/sourceTerms/Flame/FlameEffects/BurnParametric
    physics/sourceTerms/Flame/FlameMain/RDSplit5point
    physics/sourceTerms/Flame/FlameSpeed/BuoyancyCompensation/CONe
    physics/sourceTerms/Flame/FlameSpeed/laminar/CONe
    physics/sourceTerms/Flame/FlameSpeed/turbulent
scanning
/home/eugene/codes/astro/flash/autoDDT_dens_thresh/build/object_snia_ddt/Units
file for included units
    Driver/DriverMain/Split
    Grid/GridBoundaryConditions
    Grid/GridMain/paramesh/interpolation/Paramesh4/prolong
    Grid/GridMain/paramesh/interpolation/prolong
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/headers
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/mpi_source
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/source
    Grid/GridMain/paramesh/paramesh4/Paramesh4dev/PM4_package/utilities/multigrid
    Grid/GridParticles/GridParticlesMapFromMesh
```

```
    Grid/GridParticles/GridParticlesMove/Sieve/BlockMatch
    Grid/GridParticles/GridParticlesMove/paramesh/PointToPoint
    Grid/GridSolvers/Multipole
    Grid/localAPI
    IO/IOMain/hdf5/serial/PM
    IO/IOParticles/hdf5/serial
    IO/localAPI
    Particles/ParticlesInitialization/WithDensity/CellMassBins
    Particles/ParticlesMain/passive/RungeKutta
    Particles/ParticlesMapping/meshWeighting/CIC
    Particles/localAPI
    PhysicalConstants/PhysicalConstantsMain
    RuntimeParameters/RuntimeParametersMain
    Simulation/SimulationComposition/Burn
    Simulation/SimulationMain/SNIa_ddt
    flashUtilities/contiguousConversion
    flashUtilities/general
    flashUtilities/interpolation/oneDim
    flashUtilities/nameValueLL
    flashUtilities/sorting
    flashUtilities/system/memoryUsage/legacy
    monitors/Logfile/LogfileMain
    monitors/Timers/TimersMain/MPINative
    physics/Eos/EosMain/Helmholtz/ExternalAbarZbar
    physics/Eos/localAPI
    physics/Gravity/GravityMain/Poisson/Multipole
    physics/Hydro/HydroMain/split/PPM/PPMKernel
    physics/materialProperties/NSE/NSEMain
    physics/sourceTerms/Burn/BurnMain/parametric/CONe2NSE
    physics/sourceTerms/Flame/FlameEffects/BurnParametric
    physics/sourceTerms/Flame/FlameMain/RDSplit5point
    physics/sourceTerms/Flame/FlameSpeed/BuoyancyCompensation/CONe
    physics/sourceTerms/Flame/FlameSpeed/laminar/CONe
    physics/sourceTerms/Flame/FlameSpeed/turbulent
Computing default values for options not specified on command line

    INFO: Parameter useBurn defined in both
    physics/sourceTerms/Burn (default FALSE) and
    Simulation/SimulationMain/SNIa_ddt (default true)
    Simulation instance overrides; removing other instance.

    INFO: Parameter bn_thermalReact defined in both
    Simulation/SimulationMain/SNIa_ddt (default false) and
    physics/sourceTerms/Burn/BurnMain/parametric/CONe2NSE (default true)
    Simulation instance overrides; removing other instance.
Using Makefile.h: /home/eugene/codes/astro/flash/autoDDT_dens_thresh/sites/snia-lap
generating Makefile
Copying data files: 6 copied
```

```
SUCCESS
(py2)
```

We see "SUCCESS" printed above, so the setup script finished successfully and made a directory with the source files we need to compile. Let's change directories to compile our simulation.

```
In [37]: cd build/object_snia_ddt
         ls
```

```
(py2) amr_1blk_bcset.F90                  Heatexchange_init.F90
amr_1blk_cc_cp_remote.F90                 Heatexchange_interface.F90
amr_1blk_cc_prol_genorder.F90             Heat.F90
amr_1blk_cc_prol_gen_unk_fun.F90          Heat_finalize.F90
amr_1blk_cc_prol_gen_work_fun.F90         Heat_init.F90
amr_1blk_cc_prol_inject.F90               Heat_interface.F90
amr_1blk_cc_prol_linear.F90               helm_table.dat
amr_1blk_cc_prol_user.F90                 hydro_1d.F90
amr_1blk_cc_prol_work_genorder.F90        Hydro_computeDt.F90
amr_1blk_cc_prol_work_inject.F90          Hydro_data.F90
amr_1blk_cc_prol_work_linear.F90          Hydro_detectShock.F90
amr_1blk_cc_prol_work_user.F90            Hydro.F90
amr_1blk_copy_soln.F90                    Hydro_finalize.F90
amr_1blk_ec_cp_remote.F90                 Hydro_init.F90
amr_1blk_ec_prol_gen_fun.F90              Hydro_interface.F90
amr_1blk_ec_prol_genorder.F90             Hydro_recalibrateEints.F90
amr_1blk_ec_prol_linear.F90               Hydro_sendOutputData.F90
amr_1blk_ec_prol_user.F90                 Hydro_shockStrength.F90
amr_1blk_fc_clean_divb.F90                hy_interpNoLim.F90
amr_1blk_fc_cp_remote.F90                 hy_nomonot.F90
amr_1blk_fc_prol_dbz.F90                  hy_ppm_block.F90
amr_1blk_fc_prol_gen_fun.F90              hy_ppm_completeGeomFactors.F90
amr_1blk_fc_prol_genorder.F90             hy_ppm_force.F90
amr_1blk_fc_prol_inject.F90               hy_ppm_geom.F90
amr_1blk_fc_prol_linear.F90               hy_ppm_getTemporaryData.F90
amr_1blk_fc_prol_user.F90                 hy_ppm_interface.F90
amr_1blk_guardcell_reset.F90              hy_ppm_putTemporaryData.F90
amr_1blk_guardcell_srl.F90                hy_ppm_sweep.F90
amr_1blk_nc_cp_remote.F90                 hy_ppm_updateSoln.F90
amr_1blk_nc_prol_gen_fun.F90              INSTALL.py
amr_1blk_nc_prol_genorder.F90             interp_char.F90
amr_1blk_nc_prol_linear.F90               interp.F90
amr_1blk_nc_prol_user.F90                 intrfc.F90
amr_1blk_save_soln.F90                    io_attribute.c
amr_1blk_to_perm.F90                      io_attribute.h
amr_1blk_t_to_perm.F90                    io_bcastScalars.F90
amr_bcset_init.F90                        IO_checkForPlot.F90
amr_block_geometry.F90                    io_c_interface.F90
```

```
amr_check_refine.F90                    io_closeFile.F90
amr_close.F90                            io_comp_decomp.c
amr_compute_morton.F90                    io_comp_decomp.h
amr_get_new_nodetypes.F90              io_compressDecompress.c
amr_initialize.F90                      io_compressDecompress.h
amr_mg_common.F90                      io_create_dataset.c
amr_mg_init.F90                              io_create_dataset.h
amr_mg_morton_process.F90              IO_data.F90
amr_mg_prolong.F90                      IO_endRayWrite.F90
amr_mg_restrict.F90                      io.F90
amr_migrate_tree_data.F90              IO_finalize.F90
amr_morton_order.F90                       io_finalizeListsRead.F90
amr_morton_process.F90                       io_finalizeListsWrite.F90
amr_mpi_find_blk_in_buffer.F90               io_flash.h
amr_perm_to_1blk.F90                       io_getAllScalars.F90
amr_prolong_cc_fun_init.F90              io_getNumScalars.F90
amr_prolong_face_fun_init.F90             io_getOutputName.F90
amr_prolong_fun_init.F90               io_getParticleOffset.F90
amr_prolong_gen_unk1_fun.F90               IO_getPrevScalar.F90
amr_prolong_gen_work1_fun.F90              IO_getScalar.F90
amr_q_sort.F90                               io_getVarExtrema.F90
amr_q_sort_real.F90                      io_h5_attribute.c
amr_reorder_grid.F90                       io_h5_attribute.h
amr_restrict_ec_fun.F90                       io_h5create_dataset.c
amr_restrict_ec_genorder.F90               io_h5create_dataset.h
amr_restrict_ec_user.F90               io_h5create_raydset.c
amr_restrict_edge.F90                       io_h5file_interface.c
amr_restrict_fc_fun.F90                       io_h5read_bflags.c
amr_restrict_fc_genorder.F90               io_h5read_blk_particle_info.c
amr_restrict_fc_user.F90               io_h5read_blksize.c
amr_restrict_nc_fun.F90                       io_h5read_bndbox.c
amr_restrict_nc_genorder.F90               io_h5read_coords.c
amr_restrict_nc_user.F90               io_h5read_generic_int_arr.c
amr_restrict_red.F90                       io_h5read_generic_real_arr.c
amr_restrict_unk_fun.F90               io_h5read_gid.c
amr_restrict_unk_genorder.F90               io_h5read_globalintvect.c
amr_restrict_unk_user.F90               io_h5read_globalstrvect.c
amr_restrict_work_fun.F90               io_h5read_header.c
amr_restrict_work_fun_recip.F90        io_h5read_lists.c
amr_restrict_work_genorder.F90               io_h5read_localnp.c
amr_restrict_work_user.F90             io_h5read_lrefine.c
amr_set_runtime_parameters.F90               io_h5read_nodetype.c
amr_sort_by_work.F90                       io_h5read_num_props.c
amr_sort_morton.F90                      io_h5read_particle_names.c
amr_sort_morton_reorder_grid.F90       io_h5read_particles.c
amr_system_calls.F90                       io_h5read_single_part_prop.c
avisco.F90                             io_h5read_unknowns.c
bn_paraAllIgnite.F90                       io_h5read_which_child.c
```

```
bn_paraAllSpark.F90
bn_paraBurn.F90
bn_paraFuelAshProperties.F90
bn_paraInterface.F90
bn_paraSpark.F90
Burn_computeDt.F90
Burn_data.F90
Burn.F90
Burn_finalize.F90
Burn_init.F90
Burn_interface.F90
Burn_nseAtDens.F90
Burn_nseAtPres.F90
cc_7e8_linear_wd_plain.dat
clean_divb.fh
clean_field.F90
cma_flatten.F90
coeff.F90
compress_fetch_list.F90
concatStringWithInt.F90
Conductivity.F90
Conductivity_finalize.F90
Conductivity_init.F90
Conductivity_interface.F90
CONeFlameTable.txt
constants.F90
constants.h
Cool_computeDt.F90
Cool.F90
Cool_finalize.F90
Cool_init.F90
Cool_interface.F90
Cool_unitTest.F90
Cosmology_cdmPowerSpectrum.F90
Cosmology_computeDeltaCrit.F90
Cosmology_computeDt.F90
Cosmology_computeVariance.F90
Cosmology_finalize.F90
Cosmology_getOldRedshift.F90
Cosmology_getParams.F90
Cosmology_getRedshift.F90
Cosmology_init.F90
Cosmology_interface.F90
Cosmology_massToLength.F90
Cosmology_redshiftHydro.F90
Cosmology_redshiftToTime.F90
Cosmology_sendOutputData.F90
Cosmology_solveFriedmannEqn.F90
   io_h5_type.c
       io_h5_type.h
    io_h5_type_matched_xfer.c
    io_h5_type_matched_xfer.h
io_h5write_bflags.c
  io_h5write_blk_particle_info.c
     io_h5write_blksize.c
io_h5write_blksize_sp.c
 io_h5write_bndbox.c
     io_h5write_bndbox_sp.c
  io_h5write_coords.c
  io_h5write_coords_sp.c
  io_h5write_generic_int_arr.c
  io_h5write_generic_real_arr.c
     io_h5write_gid.c
       io_h5write_header.c
       io_h5write_lists.c
 io_h5write_localnp.c
       io_h5write_lrefine.c
       io_h5write_nodetype.c
io_h5write_particles.c
 io_h5write_procnumber.c
     io_h5write_raydata.c
  io_h5write_unknowns.c
  io_h5write_unknowns_sp.c
     io_h5write_which_child.c
   io_h5_xfer.c
  io_h5_xfer.h
io_h5_xfer_wrapper.c
 io_h5_xfer_wrapper.h
     IO_init.F90
  io_initFile.F90
 IO_initRPsFromCheckpoint.F90
      IO_interface.F90
      io_isPlotVar.F90
       io_memoryReport.F90
     io_mpi_type.c
      io_mpi_type.h
    Ionize_equil.F90
       Ionize.F90
 Ionize_finalize.F90
  Ionize.h
       Ionize_init.F90
  Ionize_interface.F90
   IO_output.F90
    IO_outputFinal.F90
    IO_outputInitial.F90
IOParticles_data.F90
```

```
Cosmology_unitTest.F90
current_date_time.F90
default.par
Deleptonize.F90
Deleptonize_finalize.F90
Deleptonize_getBounce.F90
Deleptonize_init.F90
Deleptonize_interface.F90
detect.F90
Diffuse_advance1D.F90
Diffuse_computeDt.F90
Diffuse.F90
Diffuse_finalize.F90
Diffuse_fluxLimiter.F90
Diffuse_init.F90
Diffuse_interface.F90
Diffuse_solveScalar.F90
Diffuse_species.F90
Diffuse_therm.F90
Diffuse_visc.F90
Driver_abortFlashC.c
Driver_abortFlash.F90
Driver_checkMPIErrorCode.F90
Driver_computeDt.F90
Driver_computeDtTemp.F90
Driver_data.F90
Driver_driftBlock.F90
Driver_driftSetSrcLoc.F90
Driver_driftUnk.F90
Driver_evolveFlash.F90
Driver_finalizeFlash.F90
Driver_finalizeSourceTerms.F90
Driver_getComm.F90
Driver_getDt.F90
Driver_getElapsedWCTime.F90
Driver_getMype.F90
Driver_getNStep.F90
Driver_getNumProcs.F90
Driver_getSimTime.F90
Driver_getTimeStamp.F90
Driver_init.F90
Driver_initFlash.F90
Driver_initMaterialProperties.F90
Driver_initParallel.F90
Driver_initSourceTerms.F90
Driver_interface.F90
Driver_logMemoryUsage.F90
Driver_mpiThreadSupport.F90
      io_prepareListsRead.F90
     io_prepareListsWrite.F90
   io_prepareSimInfo.F90
      io_ptCorrectNextPartTime.F90
io_ptCreateSubset.F90
 io_ptInit.F90
    io_ptInterface.F90
 io_ptReadParticleData.F90
  io_ptResetNextFile.F90
     io_ptSendOutputData.F90
     io_ptWriteParticleData.F90
   IO_readCheckpoint.F90
    io_readData.F90
       IO_readParticles.F90
io_readRPsFromCheckpoint.F90
     IO_readUserArray.F90
       io_restrictBeforeWrite.F90
   IO_sendOutputData.F90
 io_setPrevScalar.F90
IO_setScalar.F90
    IO_startRayWrite.F90
     io_typeInterface.F90
    IO_updateScalars.F90
    IO_writeCheckpoint.F90
io_writeData.F90
       IO_writeIntegralQuantities.F90
     IO_writeParticles.F90
 IO_writePlotfile.F90
   IO_writeRays.F90
      IO_writeUserArray.F90
io_xfer_cont_slab.c
      io_xfer_cont_slab.h
  io_xfer_tree_data.F90
local_tree_build.F90
   local_tree.F90
  log_allocateStrArr.F90
   Logfile_break.F90
      Logfile_close.F90
     Logfile_create.F90
       Logfile_data.F90
       Logfile_finalize.F90
    Logfile_getDateTimeStr.F90
Logfile_init.F90
       Logfile_interface.F90
  Logfile_open.F90
    Logfile_stamp.F90
 Logfile_stampMessage.F90
   Logfile_stampVarMask.F90
```

```
Driver_putTimeStamp.F90
Driver_sendOutputData.F90
Driver_setupParallelEnv.F90
Driver_sourceTerms.F90
Driver_superTimeStep.F90
Driver_verifyInitDt.F90
dr_set_rlimits.c
dr_shortenLastDt.F90
dr_sleep.c
EnergyDeposition.F90
EnergyDeposition_finalize.F90
EnergyDeposition_init.F90
EnergyDeposition_interface.F90
Eos_data.F90
eos_externalComputeAbarZbar.F90
Eos.F90
eos_fillMapLookup.F90
Eos_finalize.F90
Eos_getAbarZbar.F90
Eos_getData.F90
Eos_getParameters.F90
Eos_getTempData.F90
Eos_guardCells.F90
Eos.h
eos_helmConstData.F90
eos_helmData.F90
eos_helm.F90
eos_helmholtz.F90
eos_helmInterface.F90
eos_idealGamma3T.F90
eos_idealGamma.F90
Eos_init.F90
eos_initGamma.F90
eos_initHelmholtz.F90
eos_initMgamma.F90
eos_initMtemp.F90
eos_initNuclear.F90
eos_initTabulated.F90
Eos_interface.F90
eos_localInterface.F90
Eos_logDiagnostics.F90
Eos_map.h
eos_mgamma.F90
eos_mtemp.F90
eos_mtInterface.F90
eos_nuclear.F90
Eos_nucOneZone.F90
Eos_putData.F90
      Logfile_writeSummary.F90
 log_getUnitsArr.F90
   MagneticResistivity.F90
      MagneticResistivity_finalize.F90
MagneticResistivity_init.F90
       MagneticResistivity_interface.F90
make_bstamp
    make_bstats
  Makefile
    Makefile.Burn
     Makefile.Conductivity
 Makefile.Cool
      Makefile.Cosmology
    Makefile.Deleptonize
Makefile.Diffuse
       Makefile.Driver
     Makefile.EnergyDeposition
Makefile.Eos
   Makefile.Flame
       Makefile.flashUtilities
     Makefile.Gravity
   Makefile.Grid
  Makefile.h
     Makefile.Heat
     Makefile.Heatexchange
Makefile.Hydro
    Makefile.IO
 Makefile.Ionize
     Makefile.Logfile
    Makefile.MagneticResistivity
  Makefile.MassDiffusivity
    Makefile.Multispecies
 Makefile.NSE
     Makefile.Opacity
  Makefile.Particles
 Makefile.PhysicalConstants
   Makefile.Polytrope
     Makefile.PrimordialChemistry
 Makefile.Profiler
      Makefile.RadTrans
      Makefile.RuntimeParameters
 Makefile.Simulation
      Makefile.Stir
     Makefile.Timers
   Makefile.Turb
       Makefile.Viscosity
  makeLowercase.F90
       make_release
```

```
eos_readHfet.F90
eos_tabFinalize.F90
eos_tabInterface.F90
eos_tabIonmix.F90
eos_tabulated.F90
eos_tools.c
Eos_unitTest.F90
eos_variableMap.F90
eos_vecAlloc.F90
eos_vecData.F90
eos_vecDealloc.F90
Eos_wrapped.F90
eos_writeHfet.F90
fill_old_loc.F90
find_surrblks.F90
findWords.F90
Flame_data.F90
Flame_finalize.F90
Flame_getProfile.F90
Flame_getWidth.F90
Flame_init.F90
Flame_interface.F90
Flame_laminarSpeed.F90
Flame_rhJump.F90
Flame_rhJumpReactive.F90
Flame_step.F90
flash_convert_cc_hook.F90
Flash.F90
Flash.h
Flash_mpi.h
flash.par
flash_unconvert_cc_hook.F90
flaten.F90
fl_effData.F90
fl_effects.F90
fl_effFinalize.F90
fl_effInit.F90
fl_effInterface.F90
fl_flameSpeed.F90
fl_fsAtwoodData.F90
fl_fsAtwoodEndTable.F90
fl_fsAtwood.F90
fl_fsAtwoodInitTable.F90
fl_fsAtwoodInterface.F90
fl_fsConeData.F90
fl_fsConeInterp.F90
fl_fsData.F90
fl_fsFinalize.F90
mangle_names.h
   MassDiffusivity.F90
    MassDiffusivity_finalize.F90
 MassDiffusivity_init.F90
 MassDiffusivity_interface.F90
   monot.F90
morton_sort.F90
   mpi_amr_1blk_guardcell_c_to_f.F90
mpi_amr_1blk_guardcell.F90
       mpi_amr_1blk_restrict.F90
  mpi_amr_boundary_block_info.F90
       mpi_amr_check_derefine.F90
 mpi_amr_checkpoint_re_default.F90
mpi_amr_checkpoint_re.F90
 mpi_amr_checkpoint_re_hdf5.F90
     mpi_amr_checkpoint_re_mpiio.F90
      mpi_amr_checkpoint_wr_default.F90
  mpi_amr_checkpoint_wr.F90
    mpi_amr_checkpoint_wr_hdf5.F90
  mpi_amr_checkpoint_wr_mpiio.F90
      mpi_amr_comm_setup.F90
   mpi_amr_derefine_blocks.F90
      mpi_amr_edge_average.F90
mpi_amr_edge_average_udt.F90
mpi_amr_edge_average_vdt.F90
      mpi_amr_edge_diagonal_check.F90
 mpi_amr_flux_conserve.F90
 mpi_amr_flux_conserve_udt.F90
       mpi_amr_flux_conserve_vdt.F90
   mpi_amr_get_remote_block.F90
 mpi_amr_get_remote_block_fvar.F90
   mpi_amr_global_domain_limits.F90
  mpi_amr_guardcell.F90
      mpi_amr_local_surr_blks_lkup.F90
      mpi_amr_plotfile_chombo.F90
  mpi_amr_prolong.F90
      mpi_amr_prolong_fc_divbconsist.F90
   mpi_amr_redist_blk.F90
 mpi_amr_refine_blocks.F90
   mpi_amr_refine_derefine.F90
       mpi_amr_restrict_bnd_data.F90
       mpi_amr_restrict_bnd_data_vdt.F90
mpi_amr_restrict_edge_data.F90
mpi_amr_restrict_edge_data_vdt.F90
 mpi_amr_restrict.F90
   mpi_amr_restrict_fulltree.F90
     mpi_amr_singular_line.F90
 mpi_amr_store_comm_info.F90
```

```
fl_fsGcMask.F90
fl_fsInit.F90
fl_fsInterface.F90
fl_fsLaminarFinalize.F90
fl_fsLaminarFlameSpeedBlock.F90
fl_fsLaminarInit.F90
fl_fsLaminarInterface.F90
fl_fsTFIFinalize.F90
fl_fsTFIFlameSpeedBlock.F90
fl_fsTFIFunc.F90
fl_fsTFIGcMask.F90
fl_fsTFIInit.F90
fl_fsTFIInterface.F90
fl_fsUnburnDensBlock.F90
fl_fsUnburnDens.F90
fl_interface.F90
fl_laplacian.F90
gr_amr_dump_runtime_parameters.F90
Gravity_accelAtCoords.F90
Gravity_accelListOfBlocks.F90
Gravity_accelOneBlock.F90
Gravity_accelOneRow.F90
Gravity_computeDt.F90
Gravity_data.F90
Gravity_finalize.F90
Gravity_init.F90
Gravity_interface.F90
Gravity_potentialListOfBlocks.F90
Gravity_unitTest.F90
gr_bcApplyToAllBlks.F90
gr_bcApplyToOneFace.F90
gr_bcData.F90
gr_bcFinalize.F90
gr_bcGetRegion.F90
gr_bcHseInit.F90
gr_bcInit.F90
gr_bcInterface.F90
gr_bcMapBcType.F90
gr_bcPutRegion.F90
gr_bhFinalize.F90
gr_bhInit.F90
gr_bhInterface.F90
gr_bicgFinalize.F90
gr_bicgInit.F90
gr_bicgInterface.F90
gr_bicgMapBcType.F90
gr_checkDataType.F90
gr_checkGridConsistency.F90
        mpi_amr_store_comm_info_mg.F90
      mpi_amr_test_neigh_values.F90
   mpi_amr_timing_report.F90
mpi_amr_tree_setup.F90
mpi_get_buffer.F90
     mpi_get_edge_buffer.F90
 mpi_get_flux_buffer.F90
     mpi_lib.F90
    mpi_morton_bnd.F90
mpi_morton_bnd_fluxcon.F90
   mpi_morton_bnd_prolong.F90
mpi_morton_bnd_restrict.F90
      mpi_morton.F90
mpi_pack_blocks.F90
    mpi_pack_edges.F90
mpi_pack_fluxes.F90
mpi_pack_tree_info.F90
mpi_put_buffer.F90
 mpi_put_edge_buffer_1blk.F90
     mpi_put_edge_buffer.F90
 mpi_put_flux_buffer.F90
        mpi_set_message_limits.F90
      mpi_set_message_limits_unpack.F90
mpi_set_message_sizes.F90
     mpi_unpack_blocks.F90
mpi_unpack_edges.F90
      mpi_unpack_fluxes.F90
mpi_unpack_tree_info.F90
     mpi_wrapper_dble.F90
        mpi_wrapper_int.F90
        mpi_wrapper_logical.F90
      mpi_wrapper_real.F90
 Multispecies_finalize.F90
  Multispecies_getAvg.F90
Multispecies_getProperty.F90
      Multispecies_getPropertyVector.F90
  Multispecies_getSum.F90
  Multispecies_getSumFrac.F90
  Multispecies_getSumInv.F90
 Multispecies_getSumSqr.F90
      Multispecies.h
  Multispecies_init.F90
   Multispecies_interface.F90
       Multispecies_list.F90
    Multispecies_setProperty.F90
    Multispecies_unitTest.F90
    nameSyntaxError.F90
   nameValueLL_bcast.F90
```

```
gr_checkGridState.F90
gr_commSetUp.F90
gr_computeMorton.F90
gr_conserveToPrimitive.F90
gr_createBlock.F90
gr_createDomain.F90
grdvel.F90
gr_enforceMaxRefine.F90
gr_ensureValidNeighborInfo.F90
gr_expandDomain.F90
gr_extendedGetCellCoords.F90
gr_extendedGetDeltas.F90
gr_findAllNeghID.F90
gr_findBlock.F90
gr_findMean.F90
gr_findNeghID.F90
gr_findWhichChild.F90
gr_findWhichChildren.F90
gr_flashHook_interfaces.F90
gr_freeCommRecvBuffer.F90
gr_GCAllocScratch.F90
gr_GCReleaseScratch.F90
gr_GCScratchData.F90
gr_GCTransferOneBlk.F90
gr_getBlkHandle.F90
gr_getCellFaceArea.F90
gr_getCellVol.F90
gr_getDataOffsets.F90
gr_getIndex.F90
gr_getInteriorBlkPtr.F90
gr_hg_amr_1blk_bcset_work.F90
gr_hgFinalize.F90
gr_hgInit.F90
gr_hgInterface.F90
gr_hgMapBcType.F90
gr_hgPfftFinalize.F90
gr_hgPfftInit.F90
gr_hypreAddGraph.F90
gr_hypreApplyBcToFace.F90
gr_hypreComputeB.F90
gr_hypreCreateMatrix.F90
gr_hypreDestroyGrid.F90
gr_hypreDestroySolver.F90
gr_hypreExchangeFacB.F90
gr_hypreFinalize.F90
gr_hypreGetFaceB.F90
gr_hypreGridStatus.F90
gr_hypreInit.F90
nameValueLL_data.F90
nameValueLL_getAll.F90
nameValueLL_get.F90
nameValueLL_getNum.F90
nameValueLL_logRules.F90
nameValueLL_rules.F90
nameValueLL_set.F90
NSE_data.F90
nse_dens_emq_table.txt
NSE_finalAtDens.F90
NSE_finalAtPres.F90
NSE_finalize.F90
NSE_init.F90
NSE_interface.F90
nse_pres_hmq_table.txt
Opacity.F90
Opacity_finalize.F90
Opacity_init.F90
Opacity_interface.F90
Opacity_unitTest.F90
paramesh_comm_data.F90
paramesh_dimensions.F90
Paramesh_finalize.F90
Paramesh_init.F90
paramesh_interfaces.F90
paramesh_mpi_interfaces.F90
paramesh_preprocessor.fh
paramesh_reorder.h
Particles_accumCount.F90
Particles_addNew.F90
Particles_advance.F90
Particles_computeDt.F90
Particles_data.F90
Particles_dump.F90
Particles_finalize.F90
Particles_getCountPerBlk.F90
Particles_getGlobalNum.F90
Particles_getLocalNum.F90
Particles.h
Particles_initData.F90
Particles_init.F90
Particles_initForces.F90
Particles_initPositions.F90
Particles_interface.F90
Particles_longRangeForce.F90
Particles_manageLost.F90
Particles_mapFromMesh.F90
Particles_mapToMeshOneBlk.F90
```

```
gr_hypreSetIniGuess.F90                    Particles_putLocalNum.F90
gr_hypreSetupGrid.F90                     Particles_sendOutputData.F90
gr_hypreSetupSolver.F90                    Particles_shortRangeForce.F90
gr_hypreSolve.F90                       Particles_sinkAccelSinksOnGas.F90
gr_hypreUpdateSoln.F90                     Particles_sinkAdvance.F90
Grid_addToVar.F90                       Particles_sinkAdvanceParticles.F90
Grid_advanceDiffusion.F90               Particles_sinkComputeDt.F90
Grid_applyBCEdgeAllUnkVars.F90             Particles_sinkInit.F90
Grid_applyBCEdge.F90                     Particles_sinkMarkRefineDerefine.F90
Grid_bcApplyToRegion.F90                Particles_sinkMoveParticles.F90
Grid_bcApplyToRegionSpecialized.F90     Particles_sinkSendOutputData.F90
Grid_computeUserVars.F90                Particles_sinkSyncWithParticles.F90
Grid_computeVarDiff.F90                    Particles_specifyMethods.F90
Grid_computeVarNorm.F90                    Particles_unitTest.F90
Grid_conserveField.F90                    Particles_updateAttributes.F90
Grid_conserveFluxes.F90                    Particles_updateGridVar.F90
Grid_conserveToPrimitive.F90             Particles_updateRefinement.F90
Grid_data.F90                             pc_interface.F90
Grid_dump.F90                             pc_utilities.F90
Grid_extendedGetBlkBC.F90               PhysicalConstants_data.F90
Grid_fillGuardCells.F90                    PhysicalConstants_get.F90
Grid_finalize.F90                       PhysicalConstants_init.F90
Grid_formatNonRep.F90                     PhysicalConstants_interface.F90
Grid_GCPutScratch.F90                     PhysicalConstants_list.F90
Grid_GCTransferOneBlk.F90               PhysicalConstants_listUnits.F90
Grid_getBlkBC.F90                       PhysicalConstants_unitTest.F90
Grid_getBlkBoundBox.F90                    physicaldata.F90
Grid_getBlkCenterCoords.F90              poisson_sor.F90
Grid_getBlkCornerID.F90                    Polytrope.F90
Grid_getBlkData.F90                      Polytrope_finalize.F90
Grid_getBlkIDFromPos.F90                Polytrope_init.F90
Grid_getBlkIndexLimits.F90                Polytrope_interface.F90
Grid_getBlkPhysicalSize.F90               PPM.h
Grid_getBlkPtr.F90                        PrimordialChemistry_computeDt.F90
Grid_getBlkRefineLevel.F90                PrimordialChemistry.F90
Grid_getBlkType.F90                       PrimordialChemistry_finalize.F90
Grid_getBoundboxCentroids.F90               PrimordialChemistry_init.F90
Grid_getCellCoords.F90                     PrimordialChemistry_interface.F90
Grid_getDeltas.F90                        process_fetch_list.F90
Grid_getDomainBC.F90                       Profiler_getSummary.F90
Grid_getDomainBoundBox.F90                Profiler.h
Grid_getFluxData.F90                       Profiler_init.F90
Grid_getGeometry.F90                       Profiler_interface.F90
Grid_getGlobalIndexLimits.F90              Profiler_start.F90
Grid_getListOfBlocks.F90                Profiler_stop.F90
Grid_getLocalNumBlks.F90                prolong_arrays.F90
Grid_getMaxCommonRefinement.F90         pt_advanceCharged.F90
Grid_getMinCellSize.F90                    pt_advanceCustom.F90
```

```
Grid_getMinCellSizes.F90
Grid_getNumVars.F90
Grid_getPlaneData.F90
Grid_getPointData.F90
Grid_getRowData.F90
Grid_getSingleCellCoords.F90
Grid_getSingleCellVol.F90
Grid_getVarNonRep.F90
Grid_initDomain.F90
Grid_init.F90
Grid_interface.F90
Grid_limitAbundance.F90
Grid_mapMeshToParticles.F90
Grid_mapParticlesToMesh.F90
Grid_markBlkDerefine.F90
Grid_markBlkRefine.F90
Grid_markRefineDerefine.F90
Grid_markRefineSpecialized.F90
Grid_moveParticles.F90
Grid_outsideBoundBox.F90
Grid_parseNonRep.F90
GridParticles.h
Grid_pfft.F90
Grid_pfftFinalize.F90
Grid_pfftGetIndexLimits.F90
Grid_pfftInit.F90
Grid_pfftMapFromOutput.F90
Grid_pfftMapToInput.F90
Grid_primitiveToConserve.F90
Grid_putBlkData.F90
Grid_putFluxData.F90
Grid_putLocalNumBlks.F90
Grid_putPlaneData.F90
Grid_putPointData.F90
Grid_putRowData.F90
Grid_releaseBlkPtr.F90
Grid_renormAbundance.F90
Grid_renormMassScalars.F90
Grid_restrictAllLevels.F90
Grid_restrictByLevels.F90
Grid_sbBroadcastParticles.F90
Grid_sbCreateGroups.F90
Grid_sbSelectMaster.F90
Grid_sendOutputData.F90
Grid_setFluxHandling.F90
Grid_solidBodyUnitTest.F90
Grid_solvePoisson.F90
Grid_sortParticles.F90
pt_advanceEsti.F90
   pt_advanceEuler_active.F90
     pt_advanceEuler_passive.F90
     pt_advanceLeapfrog_cosmo.F90
   pt_advanceLeapfrog.F90
    pt_advanceMidpoint.F90
 pt_advanceRK.F90
     pt_assignWeights.F90
   pt_createTag.F90
     pt_findTagOffset.F90
  pt_initFinalize.F90
       pt_initLocal.F90
   pt_initPositions.F90
   pt_initPositionsLattice.F90
pt_initPositionsWithDensity.F90
      pt_interface.F90
   pt_mapFromMeshQuadratic.F90
      pt_mapFromMeshWeighted.F90
      pt_mapStringParamToInt.F90
pt_picInit.F90
    pt_prepareEsti.F90
       pt_setDataStructures.F90
     pt_setMask.F90
     pt_updateTypeDS.F90
   pt_utAnaGetNewPosComponents.F90
 pt_utComputeError.F90
  pt_utFakeParticlesAdvance.F90
       pt_utUpdateAnaPosns.F90
    RadTrans_computeDt.F90
   RadTrans.F90
    RadTrans_finalize.F90
RadTrans_init.F90
     RadTrans_interface.F90
     RadTrans_mgdEFromT.F90
   RadTrans_mgdGetBound.F90
      RadTrans_mgdSetBc.F90
RadTrans_mgdSetBound.F90
  RadTrans_mgdSetEnergy.F90
  RadTrans_planckInt.F90
 RadTrans_sumEnergy.F90
     rationalize_fetch_list.F90
       read_blocks_hdf5_r4.c
       read_blocks_hdf5_r8.c
       removeNullChar.F90
reorder.tpl
  resetup
     rieman.F90
      riemann_hlle.F90
```

```
Grid_unitTest.F90
Grid_updateRefinement.F90
Grid_updateSolidBodyForces.F90
Grid_xyzToBlock.F90
gr_initGeometry.F90
gr_initParameshArrays.F90
gr_initParameshDomainBboxes.F90
gr_interface.F90
gr_interfaceTypeDecl.F90
gr_isoInterface.F90
gr_isoMpoleFinalize.F90
gr_isoMpoleInit.F90
gr_makeMaskConsistent.F90
gr_markDerefineByTime.F90
gr_markEllipsoid.F90
gr_markInRadius.F90
gr_markInRectangle.F90
gr_markRefineDerefine.F90
gr_markVarThreshold.F90
gr_markWithRadius.F90
gr_mgFinalize.F90
gr_mgInit.F90
gr_mgInterface.F90
gr_mgMapBcType.F90
gr_mgPfftFinalize.F90
gr_mgPfftInit.F90
gr_mpoleAllocateRadialArrays.F90
gr_mpoleCenterOfMass.F90
gr_mpoleCM1Dspherical.F90
gr_mpoleCM2Dcylindrical.F90
gr_mpoleCM2Dspherical.F90
gr_mpoleCM3Dcartesian.F90
gr_mpoleCollectMoments.F90
gr_mpoleData.F90
gr_mpoleDeallocateRadialArrays.F90
gr_mpoleDumpMoments.F90
gr_mpoleEvalBin.F90
gr_mpoleEvalBinsize.F90
gr_mpoleFinalize.F90
gr_mpoleHeapsort.F90
gr_mpoleInit.F90
gr_mpoleInterface.F90
gr_mpoleLocalSum.F90
gr_mpoleMom1Dspherical.F90
gr_mpoleMom2Dcylindrical.F90
gr_mpoleMom2Dspherical.F90
gr_mpoleMom3Dcartesian.F90
gr_mpoleMoments.F90
rp_getArgument.F90
rp_getOpt.F90
rp_initParameters.F90
rp_rules.F90
rp_rules.h
rp_storeIgnoredParams.F90
RuntimeParameters_add.F90
RuntimeParameters_bcast.F90
RuntimeParameters_data.F90
RuntimeParameters_finalize.F90
RuntimeParameters_getAll.F90
RuntimeParameters_get.F90
RuntimeParameters_getNum.F90
RuntimeParameters_getNumIgn.F90
RuntimeParameters_getPrev.F90
RuntimeParameters_init.F90
RuntimeParameters_interface.F90
RuntimeParameters_mapStrToInt.F90
RuntimeParameters_read.F90
RuntimeParameters_set.F90
RuntimeParameters_setPrev.F90
RuntimeParameters_stampIgnored.F90
send_block_data.F90
set_f2c_indexes.F90
setup_addcdepends.py
setup_call
setup_datafiles
setup_defines
setup_depends.py
setup_getFlashUnits.F90
setup_libraries
setup_params
setup_reorder.py
setup_units
setup_vars
sim_interpolate1dWd.F90
sim_LCGRandomIterate.F90
sim_local_interface.F90
Simulation_adjustEvolution.F90
Simulation_computeAnalytical.F90
Simulation_customizeProlong.F90
Simulation_data.F90
Simulation_defineDomain.F90
Simulation_finalize.F90
Simulation_getRenormGroup.F90
Simulation_getVarnameType.F90
Simulation_initBlock.F90
Simulation_init.F90
```

```
gr_mpolePot1Dspherical.F90
gr_mpolePot2Dcylindrical.F90
gr_mpolePot2Dspherical.F90
gr_mpolePot3Dcartesian.F90
gr_mpolePotential.F90
gr_mpolePotentials.F90
gr_mpolePrintRadialInfo.F90
gr_mpoleRad1Dspherical.F90
gr_mpoleRad2Dcylindrical.F90
gr_mpoleRad2Dspherical.F90
gr_mpoleRad3Dcartesian.F90
gr_mpoleRadialSampling.F90
gr_mpoleSetDampingFactors.F90
gr_mpoleSetInnerZoneGrid.F90
gr_mpoleSetOuterZoneGrid.F90
gr_mpoleSphABTerms.F90
gr_mpoleSphBlkPotential.F90
gr_packBCs.F90
gr_pfftFinalize.F90
gr_pfftInit.F90
gr_pfftInterface.F90
gr_pfftInterfaceTypeDecl.F90
gr_pfftPoissonDirect.F90
gr_primitiveToConserve.F90
gr_ptAdvance.F90
gr_ptApplyBC.F90
gr_ptData.F90
gr_ptFillBlkParticleInfo.F90
gr_ptFinalize.F90
gr_ptHandleExcess.F90
gr_ptInit.F90
gr_ptInterface.F90
gr_ptLocalMatch.F90
gr_ptMapInit.F90
gr_ptMarkRefineDerefine.F90
gr_ptMove.F90
gr_ptMoveOffBlk.F90
gr_ptMoveSieve.F90
gr_ptNextProcPair.F90
gr_ptOneFaceBC.F90
gr_ptResetIndices.F90
gr_ptResetProcPair.F90
gr_ptSetIndices.F90
gr_ptSieveInterface.F90
gr_ptVerifyBlock.F90
gr_recreateDomain.F90
gr_releaseInteriorBlkPtr.F90
gr_restrictTree.F90
Simulation_initParticleAttrib.F90
Simulation_initRestart.F90
Simulation_initSpecies.F90
Simulation_interface.F90
Simulation_mapIntToStr.F90
Simulation_mapParticlesVar.F90
Simulation_mapStrToInt.F90
Simulation_sendOutputData.F90
SpeciesList.txt
states.F90
Stir_computeDt.F90
Stir.F90
Stir_finalize.F90
Stir_init.F90
Stir_interface.F90
test_multigrid.F90
timer.fh
Timers_data.F90
Timers_finalize.F90
Timers_getSummary.F90
Timers.h
Timers_init.F90
Timers_interface.F90
Timers_reset.F90
Timers_start.F90
Timers_stop.F90
timings.F90
tmr_buildSummary.F90
tmr_create.F90
tmr_etime.F90
tmr_findTimerIndex.F90
tmr_getMaxCallStackDepth.F90
tmr_getMaxTimerParents.F90
tmr_init.F90
tmr_lookupIndex.F90
tmr_stackLib.F90
tracer.fh
tree.F90
tree_search_for_surrblks.F90
Turb_calc.F90
Turb_finalize.F90
Turb_init.F90
Turb_interface.F90
umap.F
umap.h
Units
Units.bak
user_coord_transfm.F90
```

```
gr_sanitizeDataAfterInterp.F90              ut_conversionInterface.F90
gr_sbCreateGroups.F90                      ut_convertToArrayIndicies.F90
gr_sbCreateParticles.F90                ut_convertToMemoryOffset.F90
gr_sbFinalize.F90                        ut_cubicRealRoots.F90
gr_sbGetProcBlock.F90                       ut_fndpos.F90
gr_sbInit.F90                               ut_getFreeFileUnit.F90
gr_sbInterface.F90                        ut_hunt.F90
gr_sbSendForces.F90                        ut_insertSort.F90
gr_sbSendParticleCount.F90                ut_interpolationInterface.F90
gr_sbSendParticles.F90                        ut_polint.F90
gr_sbSendPosn.F90                        ut_quadraticInterpol.F90
gr_sbStoreParticlesPerProc.F90                ut_quadraticRealRoots.F90
gr_sbUpdateForces.F90                       ut_quarticRealRoots.F90
gr_searchNeighbor.F90                       ut_sortInterface.F90
gr_setBlockType.F90                       ut_sortOnProcs.F90
gr_setDataStructInfo.F90                ut_sysMemData.F90
gr_setGcFillNLayers.F90                        ut_sysMem.h
gr_setMasks.F90                                ut_sysMemInterface.F90
gr_setMaxRefineByTime.F90                ut_sysMemStats.F90
gr_solversFinalize.F90                        ut_sysMemSummaryStats.F90
gr_solversInit.F90                        ut_sys_mem_usage.c
gr_unmarkRefineByLogRadius.F90               Viscosity.F90
gr_updateData.F90                        Viscosity_finalize.F90
gr_updateRefinement.F90                       Viscosity_init.F90
gr_zoneMoments.F90                       Viscosity_interface.F90
gr_zonePotential.F90                       workspace.F90
hdf5_flash.h                               write_blocks_chombo_r4.c
Heat_computeDt.F90                       write_blocks_chombo_r8.c
Heatexchange_computeDt.F90               write_blocks_hdf5_r4.c
Heatexchange.F90                        write_blocks_hdf5_r8.c
Heatexchange_finalize.F90
(py2)
```

The `make` command reads the makefiles in this directory and compiles `Flash`. The `-j` option to `make` uses multiple CPU threads to parallelize the compilation. Because there are many source files, this speeds up compilation by using a set of threads to simultaneously compile multiple source files at once.

```
In [ ]: make -j
```

```
Calculating dependencies
./setup_depends.py --generateINTERMEDIATElines -c -O3 -fdefault-real-8 -fdefault-do
./setup_addcdepends.py -I /include -DH5_USE_16_API -O3  -c *.c
rm -f reorder.sh
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
test -f io_flash.h && touch io_flash.h
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
```

```
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZB
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none -DMAXBLOC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
Generating Flash Release
./make_release
```

```
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
Generating Buildstamp
Generating Build Statistics
./make_bstamp
./make_bstats
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpicc -I /include -DH5_USE_16_API -O3  -c -DMAXBLOCKS=10000 -DNXB=16 -DNYB=16 -DNZ
io_mpi_type.c: In function ‘io_mpi_type_primitive’:
io_mpi_type.c:21:5: warning: implicit declaration of function ‘Driver_abortFlashC’
     Driver_abortFlashC("[io_mpi_type]: unknown type");
     ^~~~~~~~~~~~~~~~~~
Driver_abortFlashC.c: In function ‘Driver_abortFlashC’:
Driver_abortFlashC.c:66:7: warning: implicit declaration of function ‘sleep’ [-Wimp
       sleep(Driver_abortFlashC_abortPause);
       ^~~~~
if [ -s "Driver_interface.mod" -a "Driver_interface.mod" -nt "driver_interface.mod
if [ -s "Flame_interface.mod" -a "Flame_interface.mod" -nt "flame_interface.mod" ];
if [ -s "Cosmology_interface.mod" -a "Cosmology_interface.mod" -nt "cosmology_inte
if [ -s "Opacity_interface.mod" -a "Opacity_interface.mod" -nt "opacity_interface.
if [ -s "eos_localInterface.mod" -a "eos_localInterface.mod" -nt "eos_localinterfa
if [ -s "eos_helmData.mod" -a "eos_helmData.mod" -nt "eos_helmdata.mod" ];then ln -
if [ -s "gr_GCScratchData.mod" -a "gr_GCScratchData.mod" -nt "gr_gcscratchdata.mod
if [ -s "gr_ptData.mod" -a "gr_ptData.mod" -nt "gr_ptdata.mod" ];then ln -f gr_ptDa
if [ -s "Logfile_data.mod" -a "Logfile_data.mod" -nt "logfile_data.mod" ];then ln -
if [ -s "Timers_data.mod" -a "Timers_data.mod" -nt "timers_data.mod" ];then ln -f T
if [ -s "fl_fsAtwoodInterface.mod" -a "fl_fsAtwoodInterface.mod" -nt "fl_fsatwoodi
if [ -s "fl_fsTFIInterface.mod" -a "fl_fsTFIInterface.mod" -nt "fl_fstfiinterface.
if [ -s "gr_hgInterface.mod" -a "gr_hgInterface.mod" -nt "gr_hginterface.mod" ];the
io_h5_type.c: In function ‘io_h5_type_hid_primitive’:
io_h5_type.c:22:5: warning: implicit declaration of function ‘Driver_abortFlashC’
     Driver_abortFlashC("[io_h5_type]: unknown type");
     ^~~~~~~~~~~~~~~~~~
io_h5write_generic_int_arr.c: In function ‘io_h5write_generic_int_arr_’:
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
io_h5write_generic_int_arr.c:82:31: warning: implicit declaration of function ‘mall
   dataset_name_new = (char *) malloc((*name_len) + 1 * sizeof(char));
                               ^~~~~~
io_h5write_generic_int_arr.c:82:31: warning: incompatible implicit declaration of b
io_h5write_generic_int_arr.c:82:31: note: include ‘<stdlib.h>’ or provide a declara
io_h5write_generic_int_arr.c:87:3: warning: implicit declaration of function ‘strnc
   strncpy(dataset_name_new, dataset_name, *name_len);
   ^~~~~~~
io_h5write_generic_int_arr.c:87:3: warning: incompatible implicit declaration of bu
io_h5write_generic_int_arr.c:87:3: note: include ‘<string.h>’ or provide a declarat
io_h5write_generic_int_arr.c:187:3: warning: implicit declaration of function ‘free
   free(dataset_name_new);
   ^~~~
io_h5write_generic_int_arr.c:187:3: warning: incompatible implicit declaration of b
io_h5write_generic_int_arr.c:187:3: note: include ‘<stdlib.h>’ or provide a declara
if [ -s "ut_sysMemData.mod" -a "ut_sysMemData.mod" -nt "ut_sysmemdata.mod" ];then l
if [ -s "MassDiffusivity_interface.mod" -a "MassDiffusivity_interface.mod" -nt "mas
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "gr_mpoleData.mod" -a "gr_mpoleData.mod" -nt "gr_mpoledata.mod" ];then ln -
if [ -s "gr_pfftInterfaceTypeDecl.mod" -a "gr_pfftInterfaceTypeDecl.mod" -nt "gr_pf
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Logfile_interface.mod" -a "Logfile_interface.mod" -nt "logfile_interface.m
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "RuntimeParameters_interface.mod" -a "RuntimeParameters_interface.mod" -nt 
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "gr_flashHook_interfaces.mod" -a "gr_flashHook_interfaces.mod" -nt "gr_flas
if [ -s "Driver_data.mod" -a "Driver_data.mod" -nt "driver_data.mod" ];then ln -f D
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
gr_mpoleEvalBinsize.F90:63:8:

   pause
        1
Warning: Deleted feature: PAUSE statement at (1)
if [ -s "gr_pfftInterface.mod" -a "gr_pfftInterface.mod" -nt "gr_pfftinterface.mod"
if [ -s "ut_sysMemInterface.mod" -a "ut_sysMemInterface.mod" -nt "ut_sysmeminterfac
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "eos_vecData.mod" -a "eos_vecData.mod" -nt "eos_vecdata.mod" ];then ln -f e
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "nameValueLL_data.mod" -a "nameValueLL_data.mod" -nt "namevaluell_data.mod"
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "IO_data.mod" -a "IO_data.mod" -nt "io_data.mod" ];then ln -f IO_data.mod i
if [ -s "RuntimeParameters_data.mod" -a "RuntimeParameters_data.mod" -nt "runtimepa
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "fl_effInterface.mod" -a "fl_effInterface.mod" -nt "fl_effinterface.mod" ];
if [ -s "Timers_interface.mod" -a "Timers_interface.mod" -nt "timers_interface.mod"
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "gr_mgInterface.mod" -a "gr_mgInterface.mod" -nt "gr_mginterface.mod" ];the
if [ -s "Hydro_data.mod" -a "Hydro_data.mod" -nt "hydro_data.mod" ];then ln -f Hydr
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Diffuse_interface.mod" -a "Diffuse_interface.mod" -nt "diffuse_interface.m
if [ -s "MagneticResistivity_interface.mod" -a "MagneticResistivity_interface.mod"
if [ -s "NSE_interface.mod" -a "NSE_interface.mod" -nt "nse_interface.mod" ];then l
if [ -s "gr_ptInterface.mod" -a "gr_ptInterface.mod" -nt "gr_ptinterface.mod" ];the
if [ -s "io_ptInterface.mod" -a "io_ptInterface.mod" -nt "io_ptinterface.mod" ];the
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "ut_interpolationInterface.mod" -a "ut_interpolationInterface.mod" -nt "ut_
io_attribute.c: In function ‘io_attribute_create_’:
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "gr_ptSieveInterface.mod" -a "gr_ptSieveInterface.mod" -nt "gr_ptsieveinter
if [ -s "Heatexchange_interface.mod" -a "Heatexchange_interface.mod" -nt "heatexcha
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
io_attribute.c:65:5: warning: implicit declaration of function ‘Driver_abortFlashC’
     Driver_abortFlashC("[io_attribute_create]: Unknown I/O");
     ^~~~~~~~~~~~~~~~~~
if [ -s "Turb_interface.mod" -a "Turb_interface.mod" -nt "turb_interface.mod" ];the
if [ -s "Eos_data.mod" -a "Eos_data.mod" -nt "eos_data.mod" ];then ln -f Eos_data.m
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
io_h5write_generic_real_arr.c: In function ‘io_h5write_generic_real_arr_’:
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
io_h5write_generic_real_arr.c:33:31: warning: implicit declaration of function ‘mal
   dataset_name_new = (char *) malloc((*name_len) + 1 * sizeof(char));
                               ^~~~~~
```

```
io_h5write_generic_real_arr.c:33:31: warning: incompatible implicit declaration of
io_h5write_generic_real_arr.c:33:31: note: include ‘<stdlib.h>’ or provide a declar
io_h5write_generic_real_arr.c:38:3: warning: implicit declaration of function ‘str
   strncpy(dataset_name_new, dataset_name, *name_len);
   ^~~~~~~
io_h5write_generic_real_arr.c:38:3: warning: incompatible implicit declaration of b
io_h5write_generic_real_arr.c:38:3: note: include ‘<string.h>’ or provide a declara
io_h5write_generic_real_arr.c:139:3: warning: implicit declaration of function ‘fre
   free(dataset_name_new);
   ^~~~
io_h5write_generic_real_arr.c:139:3: warning: incompatible implicit declaration of
io_h5write_generic_real_arr.c:139:3: note: include ‘<stdlib.h>’ or provide a declar
io_create_dataset.c: In function ‘io_create_dataset_’:
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
io_create_dataset.c:40:5: warning: implicit declaration of function ‘Driver_abortFl
     Driver_abortFlashC("[io_create_dataset]: Unknown I/O");
     ^~~~~~~~~~~~~~~~~~
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "fl_fsAtwoodData.mod" -a "fl_fsAtwoodData.mod" -nt "fl_fsatwooddata.mod" ];
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Conductivity_interface.mod" -a "Conductivity_interface.mod" -nt "conductiv
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "IOParticles_data.mod" -a "IOParticles_data.mod" -nt "ioparticles_data.mod"
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "gr_bcData.mod" -a "gr_bcData.mod" -nt "gr_bcdata.mod" ];then ln -f gr_bcDa
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Burn_data.mod" -a "Burn_data.mod" -nt "burn_data.mod" ];then ln -f Burn_da
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Deleptonize_interface.mod" -a "Deleptonize_interface.mod" -nt "deleptonize
if [ -s "Particles_interface.mod" -a "Particles_interface.mod" -nt "particles_inter
```

```
if [ -s "fl_fsInterface.mod" -a "fl_fsInterface.mod" -nt "fl_fsinterface.mod" ];the
if [ -s "Grid_data.mod" -a "Grid_data.mod" -nt "grid_data.mod" ];then ln -f Grid_da
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
if [ -s "NSE_data.mod" -a "NSE_data.mod" -nt "nse_data.mod" ];then ln -f NSE_data.
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
if [ -s "Gravity_data.mod" -a "Gravity_data.mod" -nt "gravity_data.mod" ];then ln
if [ -s "bn_paraInterface.mod" -a "bn_paraInterface.mod" -nt "bn_parainterface.mod"
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
Grid_releaseBlkPtr.F90:126:0:

 #endif !  FL_NON_PERMANENT_GUARDCELLS

Warning: extra tokens at end of #endif directive
if [ -s "gr_sbInterface.mod" -a "gr_sbInterface.mod" -nt "gr_sbinterface.mod" ];the
gr_ptMoveSieve.F90:87:0:

 #ifdef FLASH_GRID_PARAMESH  ! If timesInLoop >= gr_meshNumProcs then

Warning: extra tokens at end of #ifdef directive
if [ -s "Grid_interface.mod" -a "Grid_interface.mod" -nt "grid_interface.mod" ];the
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Polytrope_interface.mod" -a "Polytrope_interface.mod" -nt "polytrope_inter
if [ -s "Flame_data.mod" -a "Flame_data.mod" -nt "flame_data.mod" ];then ln -f Flam
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "eos_helmConstData.mod" -a "eos_helmConstData.mod" -nt "eos_helmconstdata.m
if [ -s "IO_interface.mod" -a "IO_interface.mod" -nt "io_interface.mod" ];then ln -
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Ionize_interface.mod" -a "Ionize_interface.mod" -nt "ionize_interface.mod'
```

gr_ptApplyBC.F90:137:0:

```
 #endif !! the endif for if(NDIM>2)
```

```
Warning: extra tokens at end of #endif directive
gr_ptApplyBC.F90:139:0:

 #endif !! the endif for if(NDIM>1)

Warning: extra tokens at end of #endif directive
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "gr_bicgInterface.mod" -a "gr_bicgInterface.mod" -nt "gr_bicginterface.mod"
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "gr_bcInterface.mod" -a "gr_bcInterface.mod" -nt "gr_bcinterface.mod" ];the
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Cool_interface.mod" -a "Cool_interface.mod" -nt "cool_interface.mod" ];the
if [ -s "eos_helmInterface.mod" -a "eos_helmInterface.mod" -nt "eos_helminterface.m
if [ -s "fl_fsLaminarInterface.mod" -a "fl_fsLaminarInterface.mod" -nt "fl_fslamina
if [ -s "Multispecies_interface.mod" -a "Multispecies_interface.mod" -nt "multispec
if [ -s "gr_interfaceTypeDecl.mod" -a "gr_interfaceTypeDecl.mod" -nt "gr_interfacet
if [ -s "Heat_interface.mod" -a "Heat_interface.mod" -nt "heat_interface.mod" ];the
if [ -s "Simulation_interface.mod" -a "Simulation_interface.mod" -nt "simulation_in
if [ -s "EnergyDeposition_interface.mod" -a "EnergyDeposition_interface.mod" -nt "e
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Particles_data.mod" -a "Particles_data.mod" -nt "particles_data.mod" ];the
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
if [ -s "gr_bhInterface.mod" -a "gr_bhInterface.mod" -nt "gr_bhinterface.mod" ];the
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
if [ -s "ut_sortInterface.mod" -a "ut_sortInterface.mod" -nt "ut_sortinterface.mod"
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBL
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "PhysicalConstants_interface.mod" -a "PhysicalConstants_interface.mod" -nt
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "fl_fsConeData.mod" -a "fl_fsConeData.mod" -nt "fl_fsconedata.mod" ];then l
if [ -s "Gravity_interface.mod" -a "Gravity_interface.mod" -nt "gravity_interface.m
if [ -s "fl_fsData.mod" -a "fl_fsData.mod" -nt "fl_fsdata.mod" ];then ln -f fl_fsDa
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Profiler_interface.mod" -a "Profiler_interface.mod" -nt "profiler_interfac
if [ -s "Simulation_data.mod" -a "Simulation_data.mod" -nt "simulation_data.mod" ];
if [ -s "Eos_interface.mod" -a "Eos_interface.mod" -nt "eos_interface.mod" ];then l
if [ -s "RadTrans_interface.mod" -a "RadTrans_interface.mod" -nt "radtrans_interfac
if [ -s "Hydro_interface.mod" -a "Hydro_interface.mod" -nt "hydro_interface.mod" ];
if [ -s "Stir_interface.mod" -a "Stir_interface.mod" -nt "stir_interface.mod" ];the
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
if [ -s "Viscosity_interface.mod" -a "Viscosity_interface.mod" -nt "viscosity_inter
Grid_conserveField.F90:213:0:

 #endif !endif FLASH_NEDGE_VAR > 0

Warning: extra tokens at end of #endif directive
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLO
mpi_amr_tree_setup.F90:89:0:

 #ifdef SAVE_MORTS &

Warning: extra tokens at end of #ifdef directive
```

```
mpi_pack_tree_info.F90:71:0:

 #ifdef SAVE_MORTS &

Warning: extra tokens at end of #ifdef directive
mpi_unpack_tree_info.F90:58:0:

 #ifdef SAVE_MORTS &

Warning: extra tokens at end of #ifdef directive
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
if [ -s "Burn_interface.mod" -a "Burn_interface.mod" -nt "burn_interface.mod" ];the
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
io_xfer_cont_slab.c: In function `io_xfer_cont_slab_':
if [ -s "fl_effData.mod" -a "fl_effData.mod" -nt "fl_effdata.mod" ];then ln -f fl_e
if [ -s "PhysicalConstants_data.mod" -a "PhysicalConstants_data.mod" -nt "physicalc
io_xfer_cont_slab.c:80:5: warning: implicit declaration of function `Driver_abortFl
     Driver_abortFlashC("[io_xfer_cont_slab]: Unknown I/O");
     ^~~~~~~~~~~~~~~~~~
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
```

```
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
if [ -s "local_tree.mod" -a "local_tree.mod" -nt "local_tree_module.mod" ];then ln
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
if [ -s "find_surrblks.mod" -a "find_surrblks.mod" -nt "local_tree_common.mod" ];th
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
mpif90 -c -O3 -fdefault-real-8 -fdefault-double-8 -ffree-line-length-none  -DMAXBLC
Linking in Units and Libraries
```

And we see that after compilation, the executable `flash4` is produced.

```
In [39]: ls flash4
```

```
flash4
(py2)
```

Compilation also produced a few other files that we'll need to actually run `Flash` so I made a handy `packageFlash.sh` script to bundle everything we need in a tarball. It's in the `build` directory of `Flash` and let's quickly inspect its contents using the `cat` command.

This just uses `tar` to package `flash.par`, `⋆.dat`, `⋆.txt`, and the executable `flash4` into the tarball `flashbinary.tar.gz`, compressed with `gzip`.

```
In [42]: ls ../.
         cat ../packageFlash.sh
```

```
object_snia_ddt                               objectSNIa_hddt
objectSNIaDDT                               object_snia_hddt_alan
objectSNIaDDT_Build001                       object_snia_hddt.bak
objectSNIaDDT_Build002                       object_snia_hddt_old
objectSNIaDDT_Build003_Pavel_debugging       object_snia_hddt_v2
objectSNIaDDT_Build004                       packageFlash.sh
(py2) tar -chz --file=flashbinary.tar.gz flash.par ⋆.dat ⋆.txt flash4
(py2)
```

Let's copy `packageFlash.sh` into the build directory and run it. It will produce the file `flashbinary.tar.gz`

```
In [43]: cp ../packageFlash.sh .
         ./packageFlash.sh
         ls ⋆.gz
```

```
(py2) (py2) flashbinary.tar.gz
(py2)
```

Finally we don't need python 2 anymore so we can deactivate the python 2 environment by doing the following:

```
In [53]: source deactivate
```

1.3 Running Flash

Okay, now we're finally ready to run `Flash` so let's start by going to the top-level `Flash` directory, navigating to our build directory, and locating the `flashbinary.tar.gz` file we created in the previous section.

```
In [16]: cd ~/codes/astro/flash/autoDDT_dens_thresh
         ls

bin    LICENSE                      setup                       setup_snia_ddt.sh   t
build  obj_GradDetParamBurn  setup_alt                      setup_snia_hddt.sh
docs   RELEASE                      setup_commands              sites
lib    RELEASE-NOTES             setup_snia_ddt_htest.sh  source


In [17]: cd build/object_snia_ddt
         ls *.gz

flashbinary.tar.gz
```

I'm going to copy that tarball into an empty directory for running `Flash` - `~/scratch/runflash` will do just fine.

```
In [18]: cp flashbinary.tar.gz ~/scratch/runflash/.
         cd ~/scratch/runflash
         ls

flashbinary.tar.gz
```

Now I'll untar the tarball, yielding `flash4` and lots of other files the `Flash` program needs to run.

```
In [19]: tar -zxvf flashbinary.tar.gz

flash.par
cc_7e8_linear_wd_plain.dat
helm_table.dat
CONeFlameTable.txt
```

```
nse_dens_emq_table.txt
nse_pres_hmq_table.txt
SpeciesList.txt
flash4
```

The next step is to copy a model file and a parameter file into my run directory. For this example, I'm going to use the CO WD model from my hybrid paper, located in the `Flash-Star/hybrid-paper-1` repository. I'm also going to copy in the parameter file `flash.par` from realization number `001`, in the same repository.

(In the below, I'm only using the bash variables `INPUTS_DIR` and `COWD_DIR` because the jupyter notebook I'm writing this in will cut off long lines.)

```
In [37]: INPUTS_DIR=~/codes/astro/Flash-Star/hybrid-paper-1/flash-inputs
         COWD_DIR=$INPUTS_DIR/co_realizations_inputs_rhoddt7.2
         cp $COWD_DIR/400k_Tc7e8_cf-Brendan_flash.dat .
         cp $COWD_DIR/Realization_001/flash.par .
         ls
```

```
400k_Tc7e8_cf-Brendan_flash.dat                      CONeFlameTable.txt
400k_Tc7e8_co_wd_R001.dat                          flash4
400k_Tc7e8_co_wd_R001_forced_hdf5_plt_cnt_0000       flashbinary.tar.gz
400k_Tc7e8_co_wd_R001_hdf5_chk_0000                flash.par
400k_Tc7e8_co_wd_R001_hdf5_chk_0001                flash.par~
400k_Tc7e8_co_wd_R001_hdf5_part_0000                helm_table.bdat
400k_Tc7e8_co_wd_R001_hdf5_plt_cnt_0000               helm_table.dat
400k_Tc7e8_co_wd_R001.log                          nse_dens_emq_table.txt
amr_runtime_parameters.dump                          nse_pres_hmq_table.txt
cc_7e8_linear_wd_plain.dat                         SpeciesList.txt
```

For the purposes of this example, I set the maximum number of timesteps to 10 so `Flash` will stop quickly.

The parameter file `flash.par` contains all the runtime parameters `Flash` uses to determine simulation settings, which input stellar model file to use, what to name output files, when to stop the simulation, etc.

I just opened the parameter file `flash.par` in `emacs` and changed the line reading:

`nend = 999999`

to:

`nend = 10`

and saved it.

```
In [27]: emacs flash.par
```

```
(emacs:4664): Gtk-WARNING **: Allocating size to Emacs 0x34c02a0 without calling gt
```

Finally I ran `Flash` - it automatically looks for `flash.par` in the current directory and reads it to get the runtime parameters. `Flash` will initialize the simulation and begin taking timesteps to advance the hydrodynamics and other simulation physics. Since I set `nend = 10`, the simulation will stop after just 10 timesteps.

```
In [28]: ./flash4

 RuntimeParameters_read:  ignoring unknown parameter "bn_autoDet"...
 RuntimeParameters_read:  ignoring unknown parameter "cfl_ini"...
 NOTE: Enabling curvilinear, cartesian_pm/cylindrical_pm/spherical_pm/polar_pm is
 MaterialProperties initialized
 Cosmology initialized
 about to open file
 [Eos_init] Cannot open helm_table.bdat!
 [Eos_init] Trying old helm_table.dat!
 [EOS Helmholtz] WARNING!  Mask setting does not speed up Eos Helmholtz calls
 Source terms initialized
  iteration, no. not moved =            0           0
 refined: total leaf blocks =            2
 refined: total blocks =            2
 INFO: Grid_fillGuardCells is ignoring masking.
  iteration, no. not moved =            0           0
 refined: total leaf blocks =            8
 refined: total blocks =           10
  iteration, no. not moved =            0           2
  iteration, no. not moved =            1           0
 refined: total leaf blocks =           14
 refined: total blocks =           18
  iteration, no. not moved =            0           5
  iteration, no. not moved =            1           0
 refined: total leaf blocks =           20
 refined: total blocks =           26
  iteration, no. not moved =            0           8
  iteration, no. not moved =            1           0
 refined: total leaf blocks =           26
 refined: total blocks =           34
  iteration, no. not moved =            0          13
  iteration, no. not moved =            1           0
 refined: total leaf blocks =           32
 refined: total blocks =           42
  iteration, no. not moved =            0          15
  iteration, no. not moved =            1           0
 refined: total leaf blocks =           98
 refined: total blocks =          130
  iteration, no. not moved =            0          66
  iteration, no. not moved =            1           0
 refined: total leaf blocks =          176
 refined: total blocks =          234
```

```
 iteration, no. not moved =            0          90
 iteration, no. not moved =            1           0
refined: total leaf blocks =          272
refined: total blocks =          362
 iteration, no. not moved =            0         213
 iteration, no. not moved =            1           0
refined: total leaf blocks =          293
refined: total blocks =          390
 iteration, no. not moved =            0         214
 iteration, no. not moved =            1           0
refined: total leaf blocks =          338
refined: total blocks =          450
[gr_mpoleInit] using 74003 moment array, 2072084 items
 Finished with Grid_initDomain, no restart
Ready to call Hydro_init
Info: Hydro_init has set hy_specialFluxVars to           3
Hydro initialized
Gravity initialized
************************************************************
 Warning: The initial timestep is too large.
   initial timestep =    1.0000000000000000
   CFL timestep     =    2.1311570186797484E-004
 Resetting dtinit to TIMESTEP_SLOW_START_FACTOR*dtcfl.
************************************************************

Initial dt verified
*** Wrote checkpoint file to 400k_Tc7e8_co_wd_R001_hdf5_chk_0000 ****
*** Wrote plotfile to 400k_Tc7e8_co_wd_R001_hdf5_plt_cnt_0000 ****
*** Wrote particle file to 400k_Tc7e8_co_wd_R001_hdf5_part_0000 ****
Initial plotfile written
Driver init all done
      n           t          dt   (          x,           y,           z) |  dt_hydro  c
      1 4.2623E-05 2.5574E-05  ( 2.000E+05,  2.000E+05,  0.000E+00) |  2.131E-04 2
      2 9.3771E-05 3.0689E-05  ( 2.000E+05,  2.000E+05,  0.000E+00) |  2.131E-04 1
      3 1.5515E-04 3.6826E-05  ( 2.000E+05,  2.000E+05,  0.000E+00) |  2.131E-04 7
      4 2.2880E-04 4.4192E-05  ( 2.000E+05,  2.000E+05,  0.000E+00) |  2.131E-04 4
      5 3.1718E-04 5.3030E-05  ( 2.000E+05,  2.000E+05,  0.000E+00) |  2.131E-04 3
      6 4.2324E-04 6.3636E-05  ( 2.000E+05,  2.000E+05,  0.000E+00) |  2.131E-04 2
      7 5.5052E-04 7.6363E-05  ( 1.400E+06, -2.000E+05,  0.000E+00) |  2.131E-04 1
      8 7.0324E-04 9.1636E-05  ( 1.400E+06, -2.000E+05,  0.000E+00) |  2.131E-04 1
      9 8.8651E-04 1.0996E-04  ( 2.000E+05,  2.200E+06,  0.000E+00) |  2.131E-04 1
 iteration, no. not moved =            0         341
 iteration, no. not moved =            1           0
refined: total leaf blocks =          350
refined: total blocks =          466
     10 1.1064E-03 1.3196E-04  ( 2.000E+05,  2.200E+06,  0.000E+00) |  2.131E-04 9
*** Wrote checkpoint file to 400k_Tc7e8_co_wd_R001_hdf5_chk_0001 ****
*** Wrote plotfile to 400k_Tc7e8_co_wd_R001_forced_hdf5_plt_cnt_0000 ****
```

I can then have a look at the new files the simulation created.

`400k_Tc7e8_co_wd_R001.dat` - contains integral quantities like total kinetic energy, total burned mass, etc. It will be important for our later analysis.

`400k_Tc7e8_co_wd_R001_hdf5_chk_0000` - a checkpoint file `Flash` creates periodically throughout the simulation: each successive checkpoint file will have a unique number at the end of the filename and `Flash` can read these files to restart a simulation at some time later than time zero if we want. This will be useful for running `Flash` in a cluster environment.

`400k_Tc7e8_co_wd_R001_hdf5_part_0000` - a particle data file, these store the thermodynamic data collected by the non-interacting tracer particles, useful for postprocessing. These get unique numbers for different time steps.

`400k_Tc7e8_co_wd_R001_hdf5_plt_cnt_0000` - a plot file, this stores data useful for plotting various quantities like density and temperature in the domain at a particular timestep. As for checkpoint and particle files, the number at the end is unique to the timestep. These files will be useful for making plots and movies showing how the explosion evolves.

`400k_Tc7e8_co_wd_R001.log` - A text log file that tells you what `Flash` is doing and is useful for debugging and getting details about the simulation.

```
In [29]: ls
```

```
400k_Tc7e8_cf-Brendan_flash.dat                      CONeFlameTable.txt
400k_Tc7e8_co_wd_R001.dat                           flash4
400k_Tc7e8_co_wd_R001_forced_hdf5_plt_cnt_0000      flashbinary.tar.gz
400k_Tc7e8_co_wd_R001_hdf5_chk_0000                 flash.par
400k_Tc7e8_co_wd_R001_hdf5_chk_0001                 flash.par~
400k_Tc7e8_co_wd_R001_hdf5_part_0000                helm_table.bdat
400k_Tc7e8_co_wd_R001_hdf5_plt_cnt_0000             helm_table.dat
400k_Tc7e8_co_wd_R001.log                           nse_dens_emq_table.txt
amr_runtime_parameters.dump                         nse_pres_hmq_table.txt
cc_7e8_linear_wd_plain.dat                          SpeciesList.txt
```