**Building NETCDF, IOAPI and SMOKE on NewRiver**

Following are the steps to build netcdf-3.6.3, ioapi-3.1, and smoke-3.7 for pgi compiler. Start with loading pgi compiler: $ module load pgi

1. NETCDF-3.6.3

Following flags worked for configuring netcdf:

$ setenv CC pgcc

$ setenv CFLAGS "-O2 -Msignextend -V"

$ setenv FC pgf90

$ setenv F90 pgf90

$ setenv FFLAGS "-O2 -w -V"

$ setenv CXX ""

$ setenv CPPFLAGS "-DNDEBUG -DpgiFortran"

$ ./configure -prefix=<install\_dir> >& config.log

$ make >& make.log

$ make check >& make\_check.log

$ make install

The compiled binaries would be in <install\_dir>

1. IOAPI-3.1

$ setenv BIN Linux2\_x86\_64pg

$ cd ioapi

Set following flags in Makeinclude.Linux2\_x86\_64pg:

AR = ar

CC = pgcc

FC = pgf90

#M4 = m4

CPP = cpp

LINK = $(CC)

MODI = "-module " ## Module-include-directory command

MFLAGS = -fast # -Mnoupcase

OMPFLAGS = # -mp

OMPLIBS = # -lmp

COPTFLAGS = -O2 -DNDEBUG -Msignextend

FOPTFLAGS = -O2 -V -Mnosecond\_underscore

FPPFLAGS = -DF90=1

FSFLAGS = -Msave

ARCHFLAGS = -DFLDMN=1 -DAUTO\_ARRAYS=1 -DF90=1 -DNDEBUG

PARFLAGS =

LIBDIR = $(SRCDIR)/../lib

BINDIR = $(SRCDIR)/../bin

ARCHLIB =

# PVMLIBS = -L$(PVM\_ROOT)/lib/$(PVM\_ARCH) -lpvm3

# M4DEFFILE = $(PVM\_ROOT)/conf/$(PVM\_ARCH).m4

Change BASEDIR in Makefile.nocpl to ioapi-3.1 base directory path.

$ cp Makefile.nocpl Makefile

$ make >& make.log

$ make fixed\_src

Link libnetcdf.a from previously build netcdf library to $BASEDIR/$BIN

$ cd ../m3tools

Change BASEDIR in Makefile.nocpl to ioapi-3.1 base directory path.

$ cp Makefile.nocpl Makefile

$ make >& make.log

The compiled binaries would be in $BASEDIR/$BIN

1. SMOKE-3.7

$ setenv SMK\_HOME <Smoke base directory>

Include this in $SMK\_HOME/scripts/platform

setenv SMOKE\_EXE Linux2\_x86\_64pg

if ( $SMOKE\_EXE == Linux2\_x86\_64pg ) then

setenv FC pgf90

setenv FFLAG "-O2 -Msave -Mbackslash -Mbyteswapio -Kieee -Mextend -Bstatic"

#setenv FFLAG "-O3 -132 -save -zero -static -traceback -openmp"

setenv DBGFLAG "-g -cm -132 -save -zero -i-static -traceback"

else

if ( ! $?FC || ! $?FFLAG || ! $?DBGFLAG ) then

echo ""

if ( ! $?FC ) echo "--> Compiler variable FC undefined..."

if ( ! $?FFLAG ) echo "--> Compiler flag variable FFLAG undefined..."

if ( ! $?DBGFLAG ) echo "--> Compiler flag variable DBGFLAG undefined..."

echo ""

echo "--> Set the variables above to proceed..."

echo ""

exit( 1 )

endif

endif

exit( 0 )

$ source $SMK\_HOME/scripts/platform

Link datshift, jul2greg and libioapi.a from <ioapi\_basedir>/$BIN to $SMK\_HOME/subsys/ioapi/$BIN

Copy \*.EXT from <ioapi\_basedir>/ioapi/fixed\_src to $SMK\_HOME/subsys/ioapi\_includes

Link libnetcdf.a to $SMK\_HOME/subsys/netcdf/$BIN

$ source $SMK\_HOME/subsys/smoke/assigns/ASSIGNS.nctox.cmaq.cb05\_soa.us12-nc

$ cd $SMK\_HOME/subsys/smoke/scripts/make

$ ./Makeall