

Compiling Code

Compiling and linking code

Compilers

Language	Compiler name
C	blrts_xlc
C++	blrts_xlC
F77	blrts_xlf
F90	blrts_xlf90
F95	blrts_xlf95

- The system include files are in `/bgl/BlueLight/ppcfloor/bglsys/include`
- The mpi and system driver libraries are under `/bgl/BlueLight/ppcfloor/bglsys/lib`
 - The libraries to link with must be listed in this order: `-lmpich.rts -lmsglayer.rts -lrts.rts -ldevices.rts`
- You may also use these scripts in `/contrib/bgl/bin` to automatically set the include and MPI libraries for you:
 - `mpxlc`
 - `mpxlC`
 - `mpxlf`
 - `mpxlf90`

⚠ Note that `mpicc` and `mpif77` are available, but they use the GNU gcc compilers, which do not offer the level of performance of the XL compilers. Please use the XL compilers when compiling your codes.

Compiler flags

- Optimization levels:
 - `-O`: good place to start, use with `-qmaxmem=64000`
 - `-O2`: same as `-O`
 - `-O3 -qstrict`: tries more aggressive optimization, while strictly obeying program semantics
 - `-O3`: aggressive, allows re-association, will replace division by multiplication with the inverse
 - `-qhot`: turns on high-order transformation module will add vector routines, unless `-qhot=novector`
 - check listing: `-qreport=hotlist`
- start with `-g -O -qarch=440 -qmaxmem=64000`

Example

- Here's an example of compiling and linking a simple program:

```
bash$ blrts_xlc -c example.c -I/bgl/BlueLight/ppcfloor/bglsys/include
bash$ blrts_xlc -o example example.o -I/bgl/BlueLight/ppcfloor/bglsys/include -L/bgl/BlueLight/ppcfloor/bglsys
/lib -lmpich.rts -lmsglayer.rts -lrts.rts -ldevices.rts
```

- The same compile using `mpxlc` from `/contrib/bgl/bin`:

```
bash$ mpxlc -c example.c
bash$ mpxlc -o example example.o
```

Note: The compile and link flags are the same for Fortran77/90/95 and C/C++