Build issues for Screamer V4.4.1 on Mac OS X Mojave

If you plan to compile Screamer on your Mac then you MUST: have either Mojave or Catalina installed on your Mac; have the latest version of xCode and the xCode command line tools installed on your MAc; and finally have a version of ccc/gfortran installed.

—> The latest version of Xcode is Xcode V11.2.1 (as of 2019‐12‐06) . Check with the macOS App Store. The Command Line Tools can be installed several ways. you can get the command‐line tools by simply typing xcode‐select ‐‐install. And on Catalina, you may have to specifify an additional include path

‐I/Library/Developer/CommandLineTools/SDKs/MacOSX.sdk/usr/include for the compiler to find the system headers. You may visit https://developer.apple.com/downloads/ and down load the latest tools and/or xCode files.

—> The latest Screamer approved version of gcc is gfortran (8.3) and gcc (8.3) . These versions of the compilers are actually approved only for Mojave and Catalina. If needed, go to <http://hpc.sourceforge.net/index.php>and download the binaries for gcc and gFortran. Follow the installation instructions.

NOTE: Modern CPUs are all 64 bit and the compilers assume 64‐bt.

After HPC binaries and xcode command‐line tools are installed, this is what you see.

As of 2019‐12‐06 for macOS ‐ Mojave 10.14.5

An example is shown operating from my terminal window (The type bold lines below are the input.)

for gcc gfortran version type RBS‐MacBook‐Pro:~ rbspielman$ **gfortran -v** Using built‐in specs.

COLLECT\_GCC=gfortran COLLECT\_LTO\_WRAPPER=/usr/local/libexec/gcc/x86\_64‐apple‐darwin18.5.0/8.3.0

/lto‐wrapper

Target: x86\_64‐apple‐darwin18.5.0

Configured with: ../gcc‐8.3.0/configure ‐‐enable‐checking=release

‐‐enable‐languages=c,c++,fortran Thread model: posix

gcc version 8.3.0 (GCC)

for the hpc version of gcc RBS‐MacBook‐Pro:~ rbspielman$ **gcc -v** Using built‐in specs.

COLLECT\_GCC=gcc

COLLECT\_LTO\_WRAPPER=/usr/local/libexec/gcc/x86\_64‐apple‐darwin18.5.0/8.3.0

/lto‐wrapper

Target: x86\_64‐apple‐darwin18.5.0

Configured with: ../gcc‐8.3.0/configure ‐‐enable‐checking=release

‐‐enable‐languages=c,c++,fortran Thread model: posix

gcc version 8.3.0 (GCC)

for Apple Clang

RBS‐MacBook‐Pro:~ rbspielman$ **clang -v** Apple clang version 11.0.0 (clang‐1100.0.33.16) Target: x86\_64‐apple‐darwin18.7.0

Thread model: posix InstalledDir:

/Applications/Xcode.app/Contents/Developer/Toolchains/XcodeDefault.xctoolchai n/usr/bin

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gfortran zdem.for \*.f ‐O03 ‐mcmodel=medium ‐o screamer64dyn

Ricks‐MacBook‐Pro:src rbspielman$ otool ‐L screamer64 screamer64:

/usr/local/lib/libgfortran.4.dylib (compatibility version 5.0.0, current version 5.0.0)

/usr/lib/libSystem.B.dylib (compatibility version 1.0.0, current version

1252.200.5)

/usr/local/lib/libgcc\_s.1.dylib (compatibility version 1.0.0, current version 1.0.0)

/usr/local/lib/libquadmath.0.dylib (compatibility version 1.0.0, current version 1.0.0)

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gfortran zdem.for \*.f ‐O03 ‐mcmodel=medium ‐static‐libgfortran ‐static‐libgcc ‐o screamer64s

screamer64s:

/usr/local/lib/libquadmath.0.dylib (compatibility version 1.0.0, current version 1.0.0)

/usr/lib/libSystem.B.dylib (compatibility version 1.0.0, current version 1252.200.5)

Note: Not full static! libquadmath is still dynamic.

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gfortran ‐c ‐O03 ‐mcmodel=medium zdem.for \*.f ar crv screamer64.a \*.o

rm \*.o

ranlib screamer64.a

g++ ‐o screamer64 screamer64.a ‐static‐libgcc /usr/local/lib/libgfortran.a

/usr/local/lib/libquadmath.a

cp screamer64 ../run\_decks/screamer64 rm screamer64.a

In this case, we needed to overcome **4**, gcc compiler bugs. 1) neither

‐static‐libquadmath nor ‐llibquadmath works when called in the gfortran command, 2) full path to libquadmath.a ‐ /usr/local/lib/libquadmath.a does not work when used in the gfortran command, 3) ‐static‐gfortran or ‐lgfortran does not work in the gcc/g++ command line ‐ use full path ‐ /usr/local/lib/libgfortran.a, and 4) neither ‐static‐libquadmath nor ‐llibquadmath work in the gcc command line ‐ path does work here ‐ /usr/local/lib/libquadmath.a.

RBS‐MacBook‐Pro:src rbspielman$ otool ‐L screamer64 screamer64:

/usr/lib/libSystem.B.dylib (compatibility version 1.0.0, current version 1252.250.1)

otools shows a fully dynamic build with only the default Apple libSystem used.