

HOW TO install the code TURBO

on

INTEL MacBook Pro with Lion OS

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1. Download the latest TURBO code (myversion is dated 04/08/12)
2. Download the fftw 2.1.5 source package
3. Download mpich2 source package (my version is 1.6)
4. Download a Fortran compiler source package (I use gfortran)

Prerequisites

You must have X-code installed (my version is 4.4).

Do not use gfortran/gcc from HPC Mac OS X page (<http://hpc.sourceforge.net/>) because the compilers they provide are not complete or suitable for our purposes.

LET'S DO IT

1 STEP:

Compile both gcc and gfortran in order to be used on a 64-bit machine. Choose a proper installation directory, e.g. (`./configure --prefix=/usr/local/gfortran64`).

Here you can download pre-compiled gfortran and gcc compilers that are good for our purposes (gfortran 4.2, gcc 4.2): <http://r.research.att.com/tools/>

2 STEP:

Compile mpich2 with the 64-bit gfortran/gcc. Choose a proper installation directory, e.g. (`./configure --prefix=/usr/local/mpich2`).

Configure options:

```
FC=gfortran fc=gfortran F77=gfortran f77=gfortran cc=gcc CC=gcc cxx=g++  
CXX=g++ CFLAGS=-m64 CXXFLAGS=-m64 FFLAGS=-m64 FCFLAGS=-m64
```

`make & sudo make install`

Actually, configure flags are not needed if you use the above-suggested compilers which are already pre-compiled for 64 bit machines.

Create a file named `.mpd.conf` in your home directory using your preferred editor. In `.mpd.conf`, type a line like `secretword=mr45-j9z` (of course use a different secret

word then mr45-j9z)

3 STEP:

Compile fftw both in single and double precision with mpich2 compilers. Choose a proper installation directory, e.g. (./configure --prefix=)/usr/local/fftw_215_mpich2.

Configure options for single precision fftw:

```
FC=mpif90 fc=mpif90 F77=mpif90 f77=mpif90 cc=mpicc CC=mpicc cxx=mpicxx  
CXX=mpicxx --enable--type-prefix --enable-mpi --enable-float
```

where

--enable-type-prefix adds the prefix «s» for single precision and «d» for double precision fftw.

--enable-float force to install single precision fftw.

make & sudo make install

Configure options for double precision fftw:

```
FC=mpif90 fc=mpif90 F77=mpif90 f77=mpif90 cc=mpicc CC=mpicc cxx=mpicxx  
CXX=mpicxx --enable--type-prefix --enable-mpi
```

make & sudo make install

Remember to add to your \$PATH the commands/library and files of compilers and also to add in TURBO's makefile the paths to fftw/mpich2 lib/include directories.

I hope to have provided you with some help and some hints on how to do it, but I am sure that you will not get to the end with a complete and safe installation because as my experience teaches me there is always something (library installation, error in writing configure options, etc etc) that will drive you crazy. Have fun!