To install Doris, I must have installed fftw-3.2.1. I installed fftw, according to INSRALL file.

```
zahra@zahra-System-Product-Name: /usr/local/software
zahra@zahra-System-Product-Name:/usr/local/software$ tar xvf fftw-3.2.1.tar.gz
fftw-3.2.1/
fftw-3.2.1/doc/
fftw-3.2.1/doc/stamp-vti
fftw-3.2.1/doc/FAQ/
fftw-3.2.1/doc/FAQ/m-info.pl
fftw-3.2.1/doc/FAQ/m-post.pl
fftw-3.2.1/doc/FAQ/m-lout.pl
fftw-3.2.1/doc/FAQ/m-ascii.pl
fftw-3.2.1/doc/FAQ/m-html.pl
fftw-3.2.1/doc/FAQ/fftw-faq.html/
fftw-3.2.1/doc/FAQ/fftw-faq.html/section5.html
fftw-3.2.1/doc/FAQ/fftw-faq.html/section4.html
fftw-3.2.1/doc/FAQ/fftw-faq.html/section2.html
fftw-3.2.1/doc/FAQ/fftw-faq.html/section1.html
fftw-3.2.1/doc/FAQ/fftw-faq.html/index.html
fftw-3.2.1/doc/FAQ/fftw-faq.html/section3.html
fftw-3.2.1/doc/FAQ/Makefile.in
fftw-3.2.1/doc/FAQ/fftw-faq.bfnn
fftw-3.2.1/doc/FAQ/html.refs
fftw-3.2.1/doc/FAQ/fftw-faq.ascii
fftw-3.2.1/doc/FAQ/bfnnconv.pl
fftw-3.2.1/doc/FAQ/Makefile.am
fftw-3.2.1/doc/html/
```

```
fftw-3.2.1/genfft/littlesimp.mli
fftw-3.2.1/genfft/algsimp.mli
fftw-3.2.1/genfft/gen_twidsq_c.ml
fftw-3.2.1/genfft/unique.mli
fftw-3.2.1/genfft/trig.ml
fftw-3.2.1/genfft/gen_hc2cdft.ml
fftw-3.2.1/genfft/complex.mli
fftw-3.2.1/genfft/gen_notw.ml
fftw-3.2.1/genfft/util.ml
fftw-3.2.1/genfft/to_alist.ml
fftw-3.2.1/genfft/to_alist.mli
fftw-3.2.1/genfft/gen_hc2c.ml
fftw-3.2.1/genfft/Makefile.am
fftw-3.2.1/genfft/gen_r2cf.ml
fftw-3.2.1/genfft/gen_r2cb.ml
fftw-3.2.1/genfft/assoctable.mli
fftw-3.2.1/genfft/util.mli
fftw-3.2.1/genfft/twiddle.ml
fftw-3.2.1/genfft/variable.mli
fftw-3.2.1/genfft/number.mli
fftw-3.2.1/genfft/gen_twiddle.ml
fftw-3.2.1/genfft/dag.ml
fftw-3.2.1/AUTHORS
zahra@zahra-System-Product-Name:/usr/local/software$ cd fftw-3.2.1
```

```
fftw-3.2.1/genfft/util.mli
fftw-3.2.1/genfft/twiddle.ml
fftw-3.2.1/genfft/variable.mli
fftw-3.2.1/genfft/number.mli
fftw-3.2.1/genfft/gen_twiddle.ml
fftw-3.2.1/genfft/dag.ml
fftw-3.2.1/AUTHORS
zahra@zahra-System-Product-Name:/usr/local/software$ cd fftw-3.2.1
zahra@zahra-System-Product-Name:/usr/local/software/fftw-3.2.1$ ./configure --prefix=`pwd` --enable-float
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether to enable maintainer-specific portions of Makefiles... no
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu
checking for gcc... gcc
checking for C compiler default output file name... a.out
checking whether the C compiler works... yes
checking whether we are cross compiling... no
checking for suffix of executables...
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
```

```
config.status: creating cell/spu/Makefile
config.status: creating api/Makefile
config.status: creating libbench2/Makefile
config.status: creating tests/Makefile
config.status: creating doc/Makefile
config.status: creating doc/FAQ/Makefile
config.status: creating tools/Makefile
config.status: creating tools/fftw_wisdom.1
config.status: creating tools/fftw-wisdom-to-conf
config.status: creating m4/Makefile
config.status: creating fftw.pc
config.status: creating config.h
config.status: config.h is unchanged
config.status: executing depfiles commands
config.status: executing libtool commands
zahra@zahra-System-Product-Name:/usr/local/software/fftw-3.2.1$ make
make  all-recursive
make[1]: Entering directory '/usr/local/software/fftw-3.2.1'
Making all in support
make[2]: Entering directory '/usr/local/software/fftw-3.2.1/support'
make[2]: Nothing to be done for 'all'.
make[2]: Leaving directory '/usr/local/software/fftw-3.2.1/support'
Making all in kernel
make[2]: Entering directory '/usr/local/software/fftw-3.2.1/kernel'
```
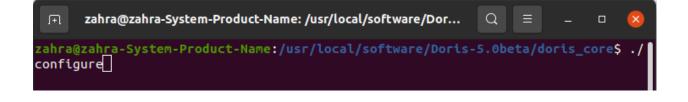
```
make[3]: Nothing to be done for 'all-am'.
make[3]: Leaving directory '/usr/local/software/fftw-3.2.1/doc'
make[2]: Leaving directory '/usr/local/software/fftw-3.2.1/doc'
Making all in tools
make[2]: Entering directory '/usr/local/software/fftw-3.2.1/tools'
rm -f fftwf-wisdom.1
cp fftw_wisdom.1 fftwf-wisdom.1
make  all-am
make[3]: Entering directory '/usr/local/software/fftw-3.2.1/tools'
/bin/bash ../libtool --tag=CC   --mode=link gcc  -O3 -fomit-frame-pointer -m
align-double -fstrict-aliasing -ffast-math   -o fftwf-wisdom fftw-wisdom.o .
./tests/bench.o ../tests/fftw-bench.o  ../libfftw3f.la ../libbench2/libbench
2.a  -lm
libtool: link: gcc -O3 -fomit-frame-pointer -malign-double -fstrict-aliasing
 -ffast-math -o fftwf-wisdom fftw-wisdom.o ../tests/bench.o ../tests/fftw-be
nch.o  ../.libs/libfftw3f.a ../libbench2/libbench2.a -lm
make[3]: Leaving directory '/usr/local/software/fftw-3.2.1/tools'
make[2]: Leaving directory '/usr/local/software/fftw-3.2.1/tools'
Making all in m4
make[2]: Entering directory '/usr/local/software/fftw-3.2.1/m4'
make[2]: Nothing to be done for 'all'.
make[2]: Leaving directory '/usr/local/software/fftw-3.2.1/m4'
zahra@zahra-System-Product-Name:/usr/local/software/fftw-3.2.1$ make install
```
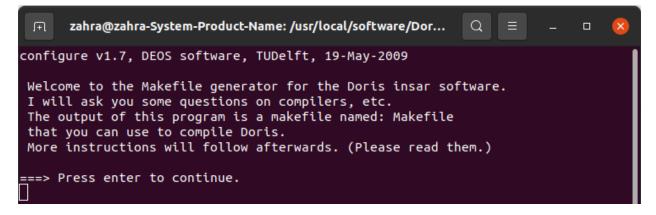
```
/usr/local/software/fftw-3.2.1/bin/fftwf-wisdom'
libtool: install: /usr/bin/install -c fftwf-wisdom /usr/local/software/fftw-
3.2.1/bin/fftwf-wisdom
test -z "/usr/local/software/fftw-3.2.1/bin" || /usr/bin/mkdir -p "/usr/loca
l/software/fftw-3.2.1/bin"
 /usr/bin/install -c 'fftw-wisdom-to-conf' '/usr/local/software/fftw-3.2.1/b
in/fftw-wisdom-to-conf'
test -z "/usr/local/software/fftw-3.2.1/share/man/man1" || /usr/bin/mkdir -p
 "/usr/local/software/fftw-3.2.1/share/man/man1"
 /usr/bin/install -c -m 644 'fftw-wisdom-to-conf.1' '/usr/local/software/fft
w-3.2.1/share/man/man1/fftw-wisdom-to-conf.1'
 /usr/bin/install -c -m 644 'fftwf-wisdom.1' '/usr/local/software/fftw-3.2.1
/share/man/man1/fftwf-wisdom.1'
make[3]: Leaving directory '/usr/local/software/fftw-3.2.1/tools'
make[2]: Leaving directory '/usr/local/software/fftw-3.2.1/tools'
make[1]: Leaving directory '/usr/local/software/fftw-3.2.1/tools'
Making install in m4
make[1]: Entering directory '/usr/local/software/fftw-3.2.1/m4'
make[2]: Entering directory '/usr/local/software/fftw-3.2.1/m4'
make[2]: Nothing to be done for 'install-exec-am'.
make[2]: Nothing to be done for 'install-data-am'.
make[2]: Leaving directory '/usr/local/software/fftw-3.2.1/m4'
make[1]: Leaving directory '/usr/local/software/fftw-3.2.1/m4'
zahra@zahra-System-Product-Name:/usr/local/software/fftw-3.2.1$
```

I finished fftw installation, successfully.

To install Doris, I installed Python2.7, g++-7.5, gcc-7.5, and gfortran7.5. I can't install lower level of gcc, g++, and gfortran.

```
zahra@zahra-System-Product-Name:/usr/local/software/Doris-5.0beta/doris_core$ gedit Makefile
```

```
zahra@zahra-System-Product-Name:/usr/local/software/Doris-5.0beta/doris_core$ ./
configure
```

```
configure v1.7, DEOS software, TUDelft, 19-May-2009

 Welcome to the Makefile generator for the Doris insar software.
 I will ask you some questions on compilers, etc.
 The output of this program is a makefile named: Makefile
 that you can use to compile Doris.
 More instructions will follow afterwards. (Please read them.)

===> Press enter to continue.
```

I answered to the some questions.

```
   I found libfftw3f.a in ../../fftw-3.2.1/lib

===> What is your C++ compiler? [g++]
g++
===> Do you have the FFTW library (y/n)? [y]
y
===> What is the path to the FFTW library (libfftw3f.a or libfftw3f.so)? [../../
fftw-3.2.1/lib]
/usr/local/software/fftw-3.2.1/lib
===> What is the path to the FFTW include file (fftw3.h)? [../../fftw-3.2.1/incl
ude]
/usr/local/software/fftw-3.2.1/include
===> Do you have the VECLIB library (y/n)? [n]
n
===> Do you have the LAPACK library (y/n)? [n]
n
===> Are you working on a Little Endian (X86 PC, Intel) machine (y/n)? [y]
y
===> Do you want to compile a more verbose DEBUG version (y/n)? [n]
     (You can first compile an optimal version, then perform a make clean,
      and then compile a debug version, which you can use in case doris
      does not produce expected results)
n
===> Installation of Doris in directory: /usr/local/bin (y/n)? [y]
n
===> Enter installation directory (use absolute path):
/usr/local/doris
```

```
n
===> Are you working on a Little Endian (X86 PC, Intel) machine (y/n)? [y]
y
===> Do you want to compile a more verbose DEBUG version (y/n)? [n]
     (You can first compile an optimal version, then perform a make clean,
      and then compile a debug version, which you can use in case doris
      does not produce expected results)
n
===> Installation of Doris in directory: /usr/local/bin (y/n)? [y]
n
===> Enter installation directory (use absolute path):
/usr/local/doris

 Creating Makefile for:
 compiler:        g++
 fftw:            y
 FFTW LIB DIR:    /usr/local/software/fftw-3.2.1/lib
 FFTW INCLUDE DIR: /usr/local/software/fftw-3.2.1/include
 veclib:          n
 lapack:          n
 Little endian:   y
 DEBUG version:   n
 Install in dir: /usr/local/doris

 file: Makefile will be OVERWRITTEN.
===> Press enter to continue (CTRL-C to exit).
```

```
   MORE INFORMATION
   ----------------
    - See the README file, the Makefile, or the users manual
      (at: http://doris.tudelft.nl/)
    - Consider installing the Matlab InSAR toolbox.

zahra@zahra-System-Product-Name:/usr/local/software/Doris-5.0beta/doris_core$ make
g++ -O -Wno-deprecated              -D_LARGEFILE64_SOURCE -D_FILE_OFFSET_BITS=64 -D_
LARGEFILE_SOURCE     -D__USE_FFTW_LIBRARY__ -D__X86PROCESSOR__   -I/usr/local/softw
are/fftw-3.2.1/include -c -o processor.o processor.cc
In file included from constants.hh:52:0,
                 from matrixbk.hh:59,
                 from processor.cc:44:
bk_messages.hh: In member function 'void bk_messages::setidentifyer(const char*)':
bk_messages.hh:214:26: error: invalid conversion from 'char' to 'const char*' [-fpe
rmissive]
         strcat(name_,'\0');// terminate id
                          ^
In file included from /usr/include/features.h:461:0,
                 from /usr/include/x86_64-linux-gnu/c++/7/bits/os_defines.h:39,
                 from /usr/include/x86_64-linux-gnu/c++/7/bits/c++config.h:533,
                 from /usr/include/c++/7/iostream:38,
                 from bk_messages.hh:42,
                 from constants.hh:52,
                 from matrixbk.hh:59,
                 from processor.cc:44:
```