Example of C++ code with OpenMP and MEX getaway routine

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```
mex -v -largeArrayDims min_omp.cpp COMPFLAGS="\$CFLAGS -fopenmp -Dinfo=0 -O3"...
      CXXFLAGS="\$CXXFLAGS -fopenmp -O3"...
      LDFLAGS="\$LDFLAGS -fopenmp -O3";

x = rand(1,1000001);


disp(min(x));

minx = min_omp(x)
```

```
Verbose mode is on.
No MEX options file identified; looking for an implicit selection.
... Looking for compiler 'g++' ...
... Executing command 'which g++' ...Yes ('/usr/bin/g++').
... Executing command 'g++ -print-file-name=libstdc++.so' ...Yes ('/usr/lib/gcc/x86_64-redhat-linux/4.8.5
... Executing command 'g++ -dumpversion' ...Yes ('4.8.5').
... Executing command 'which g++' ...Yes ('/usr/bin/g++').
... Looking for folder '/usr' ...Yes.
... Executing command 'g++ -dumpmachine' ...Yes ('x86_64-redhat-linux').
Found installed compiler 'g++'.
Set INCLUDE = /usr/lib/gcc/x86_64-redhat-linux/4.8.5/include;/usr/include/c++/4.8.5;/usr/include/c++/4.8.
Options file details
-----------------------------------------------------------------
 Compiler location: /usr/bin/g++
 Options file: /remote/soft/MATLAB/R2018b/bin/glnxa64/mexopts/g++_glnxa64.xml
 CMDLINE2 : /usr/bin/g++ \-pthread -Wl,--no-undefined  -fopenmp -O3 -shared -O -Wl,--version-script,"/rem
 CXX : /usr/bin/g++
 DEFINES : -DMX_COMPAT_64  -DMATLAB_DEFAULT_RELEASE=R2017b  -DUSE_MEX_CMD   -D_GNU_SOURCE -DMATLAB_MEX_FI
 MATLABMEX : -DMATLAB_MEX_FILE
 CFLAGS : -fexceptions -fPIC -fno-omit-frame-pointer -pthread
 CXXFLAGS : \-fexceptions -fPIC -fno-omit-frame-pointer -pthread -std=c++11 -fopenmp -O3
 INCLUDE : -I"/remote/soft/MATLAB/R2018b/extern/include" -I"/remote/soft/MATLAB/R2018b/simulink/include"
 CXXOPTIMFLAGS : -O2 -fwrapv -DNDEBUG
 CXXDEBUGFLAGS : -g
 LDXX : /usr/bin/g++
 LDFLAGS : \-pthread -Wl,--no-undefined  -fopenmp -O3
 LDTYPE : -shared
 LINKEXPORT : -Wl,--version-script,"/remote/soft/MATLAB/R2018b/extern/lib/glnxa64/mexFunction.map"
 LINKEXPORTVER : -Wl,--version-script,"/remote/soft/MATLAB/R2018b/extern/lib/glnxa64/c_exportsmexfilevers
 LINKLIBS : -Wl,--as-needed -Wl,-rpath-link,/remote/soft/MATLAB/R2018b/bin/glnxa64 -L"/remote/soft/MATLAB
 LDOPTIMFLAGS : -O
 LDDEBUGFLAGS : -g
 MWCPPLIB : "/remote/soft/MATLAB/R2018b/sys/os/glnxa64/libstdc++.so.6"
 OBJEXT : .o
 LDEXT : .mexa64
 SETENV : CC="gcc"
```

```
                CXX="/usr/bin/g++"
                CFLAGS="-fexceptions -fPIC -fno-omit-frame-pointer -pthread -DMX_COMPAT_64  -DMATLAB_DEFA
                CXXFLAGS="\-fexceptions -fPIC -fno-omit-frame-pointer -pthread -std=c++11 -fopenmp -O3 -D
                COPTIMFLAGS="-O2 -fwrapv -DNDEBUG"
                CXXOPTIMFLAGS="-O2 -fwrapv -DNDEBUG"
                CDEBUGFLAGS="-g"
                CXXDEBUGFLAGS="-g"
                LD="gcc"
                LDXX="/usr/bin/g++"
                LDFLAGS="\-pthread -Wl,--no-undefined  -fopenmp -O3 -shared -Wl,--as-needed -Wl,-rpath-li
                LDDEBUGFLAGS="-g"
 GCC : /usr/bin/g++
 CPPLIB_DIR : /usr/lib/gcc/x86_64-redhat-linux/4.8.5/libstdc++.so
 VER : 4.8.5
 GCCDIR : /usr
 GCC_TARGET : x86_64-redhat-linux
 MATLABROOT : /remote/soft/MATLAB/R2018b
 ARCH : glnxa64
 SRC : "/home/ivan/Desktop/tmp2/min_omp.cpp";"/remote/soft/MATLAB/R2018b/extern/version/cpp_mexapi_versio
 OBJ : /tmp/mex_22099478249620_24497/min_omp.o;/tmp/mex_22099478249620_24497/cpp_mexapi_version.o
 OBJS : /tmp/mex_22099478249620_24497/min_omp.o /tmp/mex_22099478249620_24497/cpp_mexapi_version.o
 SRCROOT : /home/ivan/Desktop/tmp2/min_omp
 DEF : /tmp/mex_22099478249620_24497/min_omp.def
 EXP : "min_omp.exp"
 LIB : "min_omp.lib"
 EXE : min_omp.mexa64
 ILK : "min_omp.ilk"
 MANIFEST : "min_omp.mexa64.manifest"
 TEMPNAME : min_omp
 EXEDIR :
 EXENAME : min_omp
 COMPFLAGS : \-fexceptions -fPIC -fno-omit-frame-pointer -pthread -fopenmp -Dinfo=0 -O3
 OPTIM : -O2 -fwrapv -DNDEBUG
 LINKOPTIM : -O
 CMDLINE1_0 : /usr/bin/g++ -c -DMX_COMPAT_64  -DMATLAB_DEFAULT_RELEASE=R2017b  -DUSE_MEX_CMD   -D_GNU_SOU
 CMDLINE1_1 : /usr/bin/g++ -c -DMX_COMPAT_64  -DMATLAB_DEFAULT_RELEASE=R2017b  -DUSE_MEX_CMD   -D_GNU_SOU
----------------------------------------------------------------
Building with 'g++'.
Warning: You are using gcc version '4.8.5-36)'. The version of gcc is not supported. The version
currently supported with MEX is '6.3.x'. For a list of currently supported compilers see: https://
www.mathworks.com/support/compilers/current_release.

/usr/bin/g++ -c -DMX_COMPAT_64  -DMATLAB_DEFAULT_RELEASE=R2017b  -DUSE_MEX_CMD   -D_GNU_SOURCE -DMATLAB_M
/usr/bin/g++ -c -DMX_COMPAT_64  -DMATLAB_DEFAULT_RELEASE=R2017b  -DUSE_MEX_CMD   -D_GNU_SOURCE -DMATLAB_M
/usr/bin/g++ \-pthread -Wl,--no-undefined  -fopenmp -O3 -shared -O -Wl,--version-script,"/remote/soft/MAT
MEX completed successfully.
    5.3344e-07
minx = 5.3344e-07
```