Recommended IDE → VScode

Windows

Use **ONLY ONE** of these methods:

- (RECOMMENDED) https://phoenixnap.com/kb/install-gcc-windows
- https://www.msys2.org/

Then, validate the installation by running a parallel program:

- Create a new text file and paste the following code in it:

```
#include <omp.h>
#include <stdio.h>
int main() {
        #pragma omp parallel
        printf("Hello from thread %d", omp_get_thread_num());
        return 0;
}
```

- Save the file as "test_omp.c"
- Compile it from the termainal: gcc -fopenmp test_openmp.c -o test_openmp.exe
- Run it from the terminal: ./test_openmp.exe

Linux

Check this: https://greenwebpage.com/community/how-to-install-gcc-compiler-on-linux/

Then, validate the installation by running a parallel program:

- Create a new text file and paste the following code in it:

```
#include <omp.h>
#include <stdio.h>
int main() {
        #pragma omp parallel
        printf("Hello from thread %d", omp_get_thread_num());
        return 0;
}
```

- Save the file as "test_omp.c"
- Compile it from the termainal: gcc -fopenmp test_openmp.c -o test_openmp
- Run it from the terminal: ./test_openmp

MAC

1. Open the terminal and run “brew update”
2. Run “brew install gcc”
3. Check the installation by running “gcc --version”
   This should output the information about gcc.
   The latest version of gcc is 14.
4. Check if gcc-14 is installed by running “gcc-14 --version"
5. In the following steps we will assume that you have gcc-14 installed. If not the case, replace with it the installed version (for example, gcc-13).
6. Validate the installation by running a parallel program:
   a. Create a new text file and paste the following code in it:

```
#include <omp.h>
#include <stdio.h>
int main() {
  #pragma omp parallel
  printf("Hello from thread %d", omp_get_thread_num());
  return 0;
}
```

   b. Save the file as “test_omp.c”
   c. From the terminal, run “gcc-14 -fopenmp test_openmp.c -o test_openmp”
   d. Then run “./test_openmp”
   e. This should run and see the output from multiple threads
7. If you see an error about *omp* not found, try running this command “brew install libomp”
   a. Then try step 6 again

Optional

If you want to use GCC instead of **Apple's Clang**, you can update your shell profile:

1. Open the terminal
2. Run: echo 'export CC=gcc-13' >> ~/.zshrc
3. Run: echo 'export CXX=g++-13' >> ~/.zshrc
4. Run: source ~/.zshrc

If your IDE or you want to use CMAKE, you can find templates here

1. Try this AI generated general template: https://github.com/OmarAlmighty/FCI-Parallel-Computing/blob/main/CMAKE%20general%20template/CMakeLists.txt

Otherwise try one of these:

2. MAC: https://github.com/OmarAlmighty/FCI-Parallel-Computing/blob/main/CMAKE%20MAC/CMakeLists.txt
3. Linux: https://github.com/OmarAlmighty/FCI-Parallel-Computing/blob/main/CMAKE%20Linux/CMakeLists.txt
4. Windows: https://github.com/OmarAlmighty/FCI-Parallel-Computing/blob/main/CMAKE%20Windows/CMakeLists.txt

Notes

Feel free to edit any of these files or the previous instructions to fit into your system.

If you run into any problems, please consider Googling the solution or using AI to help you to setup the environment.

Please reach out to me anytime to assist you with the installation

HAPPY CODING <3