**OpenMP** (http://www.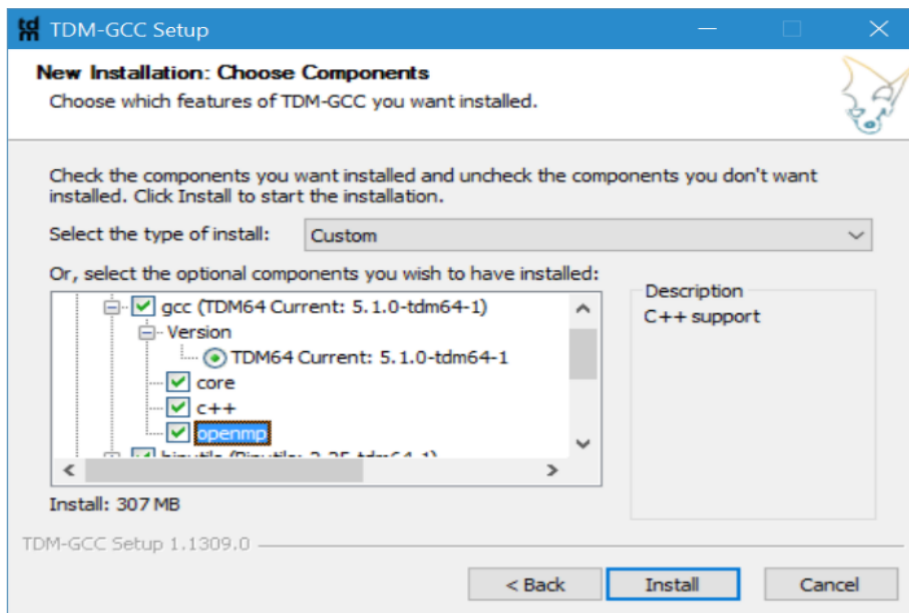openmp.org/) enables parallel computing on single computer by taking advantage of the multiple cores shipped on modern CPUs .

## Windows

1. Go to http://tdm-gcc.tdragon.net/. Download TDM_GCC.



2. Uncheck the box "Check for updated files on the TDM-GCC server" and click "Create".

3. Click "Next" to see the installation setup. Check the box "openmp" under "gcc".



4. Now, you can use gcc -fopenmp to run OpenMP on you PC.

## Mac OS X

Use Homebrew to build the GNU Compiler Collection (GCC) on a Mac.

1. Install GCC with brew. In Terminal, type in the following command:

`brew install gcc- --without-multilib`

If you have installed GCC before on your Mac, then type in the following command to reinstall it:

`brew reinstall gcc- --without-multilib`

2. Add path to your system. In Terminal, type in the following command:

`PATH=/usr/local/bin:$PATH`

3. Now, you can compile programs with OpenMP support using `gcc-7 -fopenmp`. You can test with a C file. In Terminal, type in the following command. Please note that gcc-7 is the version I have installed, yours might differ.

`gcc-7 –fopenmp –o test test.c`

Below is an example of test.c file.

```c
#include <omp.h>
#include <stdio.h>

int main(void) {
    #pragma omp parallel
    printf("thread %d\n",
omp_get_thread_num());
}
```

## Linux

1. Check the number of cores in your Linux system. Open a terminal window and type in the following command:

`grep 'processor.*' /proc/cpuinfo | wc -l`

2. Check the version of OpenMP.

`echo | cpp -fopenmp -dM | grep -i open`

3. To install GCC with OpenMP

`sudo apt-get install gcc-multilib`

## Reference

Please refer to the following webpage for more information about installation OpenMP on Mac.

1. https://clang-omp.github.io
2. http://openmp.llvm.org
3. http://thecoatlessprofessor.com/programming/openmp-in-r-on-os-x/